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ABSTRACT

This system of student evaluation of teaching was developed for use at any teaching facility. Based on a 1964 study, the authors postulated that there are six "universal" dimensions of teaching that can be identified in diverse teaching situations. A random sample of 2,000 University of Minnesota students were asked to place "weights" on each of the six teaching behaviors isolated by Isaacson et al. There was no significant difference in the weights applied by last-year students in different colleges. Students were also asked if it were realistic to rate a teacher according to the percentage of time a teacher exhibits an effective teaching behavior. In general, students agreed it was. The finished system asks last-year students to compare the teachers in the student's major department and to state in percentages how often each professor exhibits each behavior. The average rating for each behavior times the applicable weight adds to a "Teaching Proficiency Index." Comparisons between and within departmental faculty are therefore possible without regard to instructional method. Such comparisons are valuable and necessary in order to (1) render the data generated by the student evaluation easily interpreted, and (2) point out the areas as well as the individuals within a University that need attention with regard to improving teaching performance. (Author)

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May 19, 1974

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A full copy of the Teaching Evaluation report has been delivered to the City Desk.

FOR RELEASE
Wednesday
May 22,
1974

STUDENTS JOIN LEGISLATORS:

INVESTIGATING UNIVERSITY TEACHING

State legislators aren't the only people interested in how well University "profs" perform on the job ... Students at the University of Minnesota (Twin Cities campus) are also concerned.

In response to their concern, the student government has developed a comprehensive system of evaluating the teaching of University instructors. The computerized system, which has been a year in research, is called the "MSA Method of Teaching Evaluation."

(The student government of the Twin Cities campus has recently changed its name from the Minnesota Student Association (MSA) to the Twin Cities Student Assembly (TCSA). The Teaching Evaluation project has retained the name of the organization at the time it was mandated, to keept its documents consistent.)

The system is designed to be sent annually to all seniors at the University, who will be asked to evaluate the teaching in their major fields. Responses will be computer-analyzed and published for the benefit of the University community. Responsibility for administering the Teaching Evaluation project is expected to go to the MSA Services Corporation, an independent non-profit corporation set up by the student government in 1973.

This is the first system of teaching evaluation ever developed which postulates "universal" skills of teaching, and can therefore be compared across and within departments. Students hope to be able to pinpoint weak teaching areas within

MORE MORE MORE

the University, and they also hope to help students-as-consumers choose their courses wisely on the basis of the published results.

While the basic system could be easily adapted to medical workers, lawyers and other service professionals, students are careful to distinguish between evaluating persons and evaluating performances. The evaluation report emphasizes that teaching is only one of the services performed by University "profs," and that the purpose of revealing weak performances is to identify areas needing improvement in the University educational experience--not to fire faculty.

ADDITIONAL INFORMATION

- The University Senate is considering a University-wide policy on teaching evaluation, which will be acted upon May 23. The contents of the Senate report are in direct opposition to the student-generated system.

- Advance copies of the Teaching Evaluation report have been sent to:
  Carl Auerbach, Dean, Law School
  Hyman Berman, President, UMFT
  Harold Chase, Acting Vice President for Academic Administration
  Thomas Clayton, Professor of English
  Nick Coleman, State Senator
  Kenneth Doyle, Jr., Research Associate, Measurement Services Center
  Willard Hartup, Chair, University Senate Committee on Educational Policy
  Phyllis Kahn, State Representative, University area
  Toni McNaron, Coordinator, Women's programs
  Douglas Pratt, President, AAUP
  Allan Spear, State Senator, University area

cc: The Teaching Evaluation report's conclusions

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ABSTRACT

The MSA Method of Teaching Evaluation

by
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Gail Langer Karwoski, M.A.
University of Minnesota, Twin Cities

This system of student evaluation of teaching was developed for use at any teaching facility. Based on a 1964 study by Isaacson et. al. (University of Michigan), the authors postulated that there are six "universal" dimensions of teaching which can be identified in diverse teaching situations.

A random sample of 2,000 University of Minnesota students were asked to place "weights" on each of the six teaching behaviors isolated by Isaacson et. al. There was no significant difference in the weights applied by last-year students in different colleges. Students were also asked if it was realistic to rate a teacher according to the percentage of time a teacher exhibits an effective teaching behavior. In general, students agreed it was.

The finished system asks last-year students to compare the teachers in the student's major department and to state in percentages how often each prof exhibits each behavior. The average rating for each behavior times the applicable weight adds to a "Teaching Proficiency Index." Comparisons between and within departmental faculty are therefore possible without regard to instructional method. Such comparisons are valuable and necessary in order to (1) render the data generated by the student evaluation easily interpreted and (2) point out the areas as well as the individuals within a University that need attention with regard to improving teaching performance. This system encourages the publication of the annual evaluation data, to promote open discussion in the academic community of teaching strengths/weaknesses.

ED 091988

The MSA Method of Teaching Evaluation

by

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and

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May, 1974

* The University of Minnesota's (Twin Cities campus) student association changed its name in April, 1974. It is now the Twin Cities Student Assembly. The teaching evaluation project has retained the initials of the student government at the time the project was mandated in order to keep the documents of the Project consistent.

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ABOUT THE PROJECT DIRECTOR:

Jack Baker's interest in Teaching Evaluation stems from his employment as an industrial engineer specializing in job evaluation with E.I. du Pont de Nemours & Co., Inc., Topeka, Kansas. A 1972 graduate of the University of Minnesota's Law School, Jack saw a direct application of his engineering background to the service of teaching in higher education. His particular experience in industry involved adapting computers to job evaluation systems.

ACKNOWLEDGEMENTS

Jack wishes to thank:

STEVE CARTER, former MSA President, who initiated the Teaching Evaluation project and personally negotiated with the University administration for its acceptance.

DOROTHY COTTRELL, coordinator of the Teaching Evaluation opinionaire, who tirelessly mailed, tallied, typed and delivered throughout the project.

STEVE FROMAN, statistical consultant at the University Computer Center, whose patient and thorough efforts in preparing and interpreting our opinionaire data cannot be over-stressed.

KATHY KELLY, MSA President during 1974, whose personal encouragement and public support made the project's goal a reality.

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Jack also wishes to thank Cheryl Carlson, Nancy Cottrell, Nancy Johnson, Noel Jon Sederstrom and the approximately 1,000 University students whose generous contributions of time and support in returning questionnaires made this project rewarding.

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Thanks also to the Measurement Service Center's Dr. Ken Doyle for reviewing the initial draft of this report.

Finally, the University's student senators deserve hearty appreciation for their understanding of student needs in the area of academic reform and their long-range vision in implementing this project.

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CONCLUSIONS

Based on extensive research into the available studies, the student Government Evaluation Project feels that the cost of an annually administered system of teaching evaluation is justified, because of (1) the documented evidence of the reliability of student evaluations, (2) the necessity of an internally-comparable teaching evaluation system for accurate personnel decisions within the University, and (3) the importance of consumer feedback about educational services to an increasingly sophisticated student body.

Based on recent research in the field, the Project is convinced that there are universal dimensions or behaviors of teaching, which can be identified in diverse teaching situations. Comparisons between and within departmental faculty are therefore possible, without regard to instructional method. Such comparisons are valuable and necessary in order to (1) render the data generated by the evaluation easily interpreted, and (2) point out the areas, as well as the individuals, within a University that need attention with regard to improving teaching performance. This evaluation system is not designed as a tool to help profs correct specific teaching weaknesses, because excellent and confidential evaluation systems are already in existence for this purpose. (See, for example, the forms developed by the University of Minnesota's Measurement Services Center) It is essential to this Method of Teaching Evaluation, which has as its goals consumer awareness and input into administrative decisions, that the results of the evaluation system be accessible to the student body.

It is important to recognize that, in advocating this Method of Teaching Evaluation, the Project members are not suggesting that students dictate the contents of their University education. Nor should a public evaluation be feared as a "witch hunt." One of the oft-quoted goals of the academic community is the open discussion of the weaknesses and strengths of an individual's performance. Students have, in fact, long championed the retention of unpopular or unconforming faculty when their dismissal has been threatened by other groups within the University. It is the conviction of the Evaluation Project members that published data from a teaching evaluation will not harm individual faculty members. If a faculty member's teaching is found to be repeatedly ineffective, and numerous attempts to improve it by colleagues prove unsuccessful, all segments of the academic community should join together in a discussion of how that faculty member's research and service contributions may best be intensified without forcing the individual into frustrating teaching situations. Secret difficulties and hidden problems do not belong in a community of scholars.

RECOMMENDATIONS

1. This Method of Teaching Evaluation should be referred to the appropriate MSA Corporation for implementation.
2. This Method of Teaching Evaluation should be mailed to seniors (students in the last year of any degree program) for evaluation of the teaching effectiveness of the profs in their major departments.
3. This Method of Teaching Evaluation should be implemented annually during Fall Quarter and the results published and made available to the student body during Spring Quarter.
4. The MSA Corporation assigned to implement this Method of Teaching Evaluation should work in close cooperation with the appropriate committee of the Twin Cities Student Assembly dealing with academic affairs.
5. The Vice President for Student Affairs should be asked to instruct the department of Student Life Studies to assess the long-term validity of this Method of Teaching Evaluation and its appropriate use by administrative bodies.
6. This Method of evaluation should be made available to all campus organizations interested in implementing systems of consumer evaluation of other service professions; such as the Health Service, the departmental and campus library systems, or Office of Student Affairs.

INTRODUCTION

The "MSA Method of Teaching Evaluation" was developed during the summer of 1973 by the University of Minnesota's (Twin Cities campus) student government, the Minnesota Student Association (MSA).[1]

The project was the outcome of a recent campus trend toward "consumer awareness" which aimed to return to students the primary control over their environment.[2] When translated into a classroom situation, this meant that student-consumers should have the tools to wisely choose among the services (teaching) that they were purchasing at the university: Accurate, comprehensive evaluations of teaching could furnish students with these tools.[3]

The goals of the MSA Teaching Evaluation project correspond with the three goals outlines by the U.S. National Student Association (NSA) in its booklet, "Course and Teacher Evaluation":[4]

> 1. improved teacher effectiveness[5]
> 2. increased awareness among all students of the possibilities for their own education; and
> 3. general reforms to improve the effectiveness of higher education.

In order to realize these goals, it was determined that the MSA Method of Teaching Evaluation must be (a) capable of regular administration, that is, inexpensive and simple to operate once begun, and (b) accessible to the public (faculty, students, legislators[6] and lay people). This accessibility depends upon

published data and easily interpretable results. To attain the latter, it was decided that the method should be comparable within and between departmental faculty.

Student evaluation of teaching is by no means a new idea: it has been used for many years, especially at colleges and universities.[7] However, when done by students, evaluations have been erratically administered;[8] when controlled by the administration the results of the evaluations have generally been available only to faculty.[9] These older systems of evaluation, generally termed "course evaluations," were not comparable between academic departments.[11] (They were often not comparable even within a department.[12]) Many attempts, some of them initiated by students, to generate a regular and widely-distributed system of course evaluation have been discontinued.[13]

MSA's evaluation project team postulated that the failure of the course evaluation model is the result of two broad factors: (a) Student evaluators are not reinforced for their efforts to objectively evaluate teaching performances because the results are not available to the students.[9] As a consequence, the majority of students do not feel course evaluations are of any value to them.[14] Students cannot connect improved teaching with, or choose courses based on "course" evaluations. (b) The large variety of courses at a university, each taught by many instructors at irregular intervals, necessitates a "random" selection of courses to be evaluated.[15] The data generated by this random selection is unwieldy and not directly beneficial to a large proportion of students, even if it was made public.

The MSA Method of Teaching Evaluation which was created as a result of these investigations is described in Chapter I. Four assumptions underly the finished system:

1. Students are appropriate and reliable evaluators of teaching.
2. Teaching is a skill which can be improved.
3. Basic teaching skills are common to different instructional approaches, i.e., classroom lectures, discussions or TV courses.
4. Teaching is a service purchased by students as consumers in the classroom.

Both the older course evaluation model and the MSA Method share the first two assumptions. The last two assumptions are relevant only to the MSA method.

With regard to the first assumption, Costin et al. (1971) states: "a review of empirical studies indicates that students' ratings can provide reliable[16] and valid information on the quality of courses and instruction."[18] (emphasis added)

The second of four goals for the teaching evaluation project was to provide teachers with the necessary feedback to improve teaching skills.[19] A teacher's job is multifaceted, consisting of research and public service as well as teaching. The total role, therefore, may be seen as one of gathering information and dispensing it. In evaluating teaching, we are concerned with only one aspect of the latter function: communicating information to students. The two other functions are not subject to evaluation by students.

The MSA Method of Teaching Evaluation resembles the course evaluation scheme in that a skill, not a person, is being evaluated. The older model asks students to examine teaching in the context of one course, thereby divorcing the person from the skill evaluated. The MSA Method asks students to evaluate

teaching as behaviors exhibited by teachers in the classroom (or in other learning situations).[20] The whole person is not being evaluated, nor is the person as teacher under consideration,[21] for teaching is admittedly only one aspect of the teacher's role.[22] (See appendix A for comparison of course and teaching evaluation forms.)

In order to stress this separation of person (and role) from skill, a clinically-oriented vocabulary was developed for the project: the method was called the teaching evaluation method, as opposed to teacher evaluation.[23] Teaching was considered a composite of behaviors, and the end result of the evaluation was a teaching-proficiency index.

The third assumption, that basic teaching skills are shared by different instructional apporaches, is a contention supported by much of the most recent research in the field.[24] Hildebrand et al. (1971), and Hildebrand and Wilson (1970), for example, found that the "best" teachers were consistently identified by students and that these teachers exhibited skills that were not limited to any one learning situation. Isaacson et al. (1964) and McKeachie et al. (1971) have identified six teaching behaviors that seem relatively stable across courses and teachers.

The fourth assumption, that teaching is a service purchased by student/consumers, is not shared by the course evaluation scheme, nor can it be "proved". It is simply a way of viewing one of the teacher's functions. According to this viewpoint, teachers aid students in attaining the desired product of universities: education.[25] Effective teaching is a skill which must be evaluated and improved in order to enhance the quality of the University's product.

From the perspective of students, teaching is the most important function performed by teachers. Traditionally, however, teachers have been evaluated by their peers and/or their superiors on the basis of public service and research.[26] It is debatable whether these activities actually enhance teaching effectiveness. They are, however, more amenable to peer-evaluation than teaching.

Many student leaders (and most faculty) would like to see greater emphasis placed on teaching in the reward of merit within a university.[27] It was hoped that the MSA Method of Teaching Evaluation would enable teaching to be given at least equal consideration with other activities in determining merit. This would be accomplished by providing accurate assessments of teaching skills at periodic intervals within a university.

CHAPTER I

TEACHING EVALUATION MODEL

Many researchers have identified basic components, dimensions or scales of effective teaching by a variety of methods.[28] Dimensions have been determined by subjective examination of a list of teaching behaviors or by factor analysis.[29] In 1964, researchers at the University of Michigan identified six dimensions of effective teaching that seem to be present in a wide cross-section of teachers and courses.[30] These six dimensions are among several that have been shown to effectively differentiate among instructors[31] and make "theoretical as well as empirical sense."[32]

The MSA Method of Teaching Evaluation uses this 1964 Michigan study as its foundation.[33] It is one of the most recent, highly regarded,[34] easy to understand and, in our opinion, reasonable of the published studies. Although a follow-up study produced results that were slightly different from the original research[35], we chose not to rely on it, partly because the method of data analysis is not commonly used for this purpose.

In the Michigan study, researchers started with 145 statements of teaching behaviors obtained from many different student rating instruments.[37] The responses of 150 men and 150 women to these statements were factor

analyzed[29] until six "universal" (our word choice, not theirs) dimensions of effective teaching were identified, each an amalgam of 3 or 4 statements of behavior. These universal dimensions (or skills) of teaching are applicable in any teaching situation, whether it is a lecture, a large closed-circuit TV course, or in a small group discussion.[38]

Our task was to adopt the Michigan study to a system of teaching evaluation. Isaacson et. al. (1964) selected language to describe the dimensions of teaching that they felt best summarized the statements of behavior which made up each dimension. In the original study, then, the six teaching behaviors were described by such words as "interaction" or "rapport." So we took about 20 students, randomly chosen on the mall, to lunch on two subsequent days. With these students we wanted to discover terminology which would mean the same thing to them as words like "rapport" mean to academics. Their job, then, was to translate the jargon of Isaacson et. al. into terms which students could relate to.

Each student was given a questionnaire containing six questions. The questions contained the statements of behaviors as reported by Isaacson et. al. for each dimension. For example, in order to determine how students would describe a "skilled" teacher using the behaviors that Isaacson et. al. isolated in the first dimension called "skill," each student was asked to complete the sentence:

A freshman is planning to take a course from a teacher you know pretty well. You've only got a few minutes to chat before your next class, but you want to be as specific and helpful as possible.
1. You want to convey the impression that the teacher
   a. Puts across the material in an interesting way
   b. Stimulates the intellectual curiosity of students
   c. Explains things clearly, and
   d. Skillfully observes student reactions.

So you tell the freshman that this teacher _____.

The remaining dimensions (overload, structure, feedback, interaction and rapport) were treated similarly. The students were questioned in depth to elicit the words and phrases that they themselves used to describe these dimensions of teaching. A local writer[39] listened to the discussions, analyzed the results, and described each dimension in one student-generated sentence.[40] (An analysis of the discussions appears in Appendix B.)

Once basic teaching dimensions had been described, we developed an appropriate rating scale.[41] It was our feeling that in order to insure comparability of ratings between instructors,[42] an absolute scale would have to be used.[43] After discussions with randomly-picked students on campus, we suspected that most students would be able to think in terms of the percentage of time that a teacher exhibited an efficient teaching behavior.[44] The six dimensions of teaching were therefore converted into six questions to which the students are asked to respond with percentages: (see appendix A)

er

1. In percentages, how often is this teacher clear and interesting; a skilled and inspiring teacher?

2. In percentages, how often does this teacher assign a realistic amount of homework?

3. In percentages, how often is this teacher organized?

4. In percentages, how often does this teacher give tactful and honest feedback to students?

5. In percentages, how often does this teacher generate a relaxed class atmosphere encouraging discussion?

6. In percentages, how often does this teacher respect and empathize with students as individuals?

We recognize that the use of percentages and the inherent vagueness of the questions may create difficulty. Some students, particularly those majoring in the humanities, reported in informal discussions that the percentages made them uneasy about responding to the questions.

In order to get a more accurate feel for the difficulties humanities students were experiencing with the use of percentages, we surveyed approximately thirty students in an upperclass English course. Some students in the course indicated that percentages were far more accurate than a sclae of one to ten, others thought that such scales should be used. Similarly, some liked percentages better than descriptive words ("always," "sometimes," "never," etc.) and others suggested substituting such words. In a random opinionaire sent to 2,000 students during Winter Quarter (see Chapter II and Appendix C for an explanation of the methodology and results), 63.5% of the students responding agreed that "the use of percentages is sufficiently clear to me" (23.5% disagreed).

Professor Zelby at the University of Oklahoma argues that some instructors have been able to obtain high student ratings by deliberately attempting "to teach for a specific student evaluation, given a particular questionnaire.[45] However, when a questionnaire is worded in a non-specific manner, any attempts to "cheat" to obtain high student evaluations should have a low probability of success. Furthermore, such attempts to conform to student opinions of effective teaching would promote one of the goals of the teaching evaluation project: namely, improving teaching teaching performances. Attempts to "cheat" on this evaluation may, therefore, be seen as positive efforts to improve performance.

The Evaluators

Which students should evaluate teaching? There appears to be no general agreement as to the effect one's year in college has on one's ratings. Three researchers reviewed the literature and concluded that "upperclass students occasionally gave higher ratings than underclassmen (students)."[46] However, another stated that "whether a student is a freshman, sophomore, junior or senior makes little difference in teaching ratings."[47] And the University of Minnesota's Measurement Services Center argues that there is "no relationship between ratings and. . . year in school."[48]

At an institution the size of the University of Minnesota, it would be a gargantuan task to coordinate an annual teaching evaluation project involving 40,000 students. We have therefore decided to use only one

group of students as evaluators. Since there seems to be a slight inherent bias in favor of high teaching ratings by upperclass students, we chose seniors as our evaluators.

The rationale of our choice of seniors as evaluators is that their evaluations may be more "mature" than those of freshmen since seniors will have interacted with more teachers--good and bad. Also seniors' opinions of instructors who may have taught required courses might have "mellowed" by reflection or comparison. The senior would therefore be more able to objectively evaluate the teaching abilities of instructors than perhaps is the new-comer. Lastly, by administering the teaching evaluations only to seniors, students will need to be called upon only once in their university careers to fill out the lengthy form--and by the senior year, each student will have come into contact with a maximum number of instructors.

Students required to take a course sometimes rated it lower than those for whom it was an elective.[46] Two investigators found that psychology majors tended to rate psychology courses and instructors more highly than nonmajors in some cases.[49] Another study found that a student's "best" teacher generally was from the student's major area of study.[50] It appears that the faculty will receive a double benefit if seniors evaluate the teaching effectiveness of only those instructors in their major department.[51]

Since ease of implementation and allowing faculty "the benefit of the doubt" correspond in the choice of senior majors, we have chosen this group as our student evaluators.

For the purposes of this report, we consider "seniors" to be those who are in the final year of any degree program, whether undergraduate, graduate or professional. The vast majority (92.4%) of the undergraduate seniors feel they have had enough contact with some profs to be able to evaluate their teaching ability (compared with 84.3% of all students) and 94.2% feel qualified to evaluate the teaching ability of some profs (86.0% for the student body). More seniors, then, believe that their ratings will be useful and accurate than do other students.

The Evaluation Form

Older forms for the evaluation of courses and teaching have generally been designed according to the dictates of the typewriter[52] or the computer;[53] in other words, the forms are purely practical without regard for visual appeal. We could find no form whose primary design requirement was that it would be appealing to students and easy to understand. A student experienced in layout-design was therefore retained by MSA to produce an attractive teaching evaluation form.[54] This form was later revised to reflect the feedback from a mailing to 50 law students (the revised form appears in Appendix A).

The opinionaire revealed that students found the form easy to understand (80.7%) but were unwilling to agree that "the form is appealing"

(41.9% agreed, 34.8% remained neutral or undecided). It is impossible at this time to state whether the form is an "improvement" over the traditional computer-oriented forms. However, it is clear that use of this form will not be the primary reason for students refusing to participate in the project.[55]

We realize that using a non-standard form increases the cost, first by introducing an intermediate step in data preparation--the computer card--and secondly by increasing the time for key punching and verifying. However we feel the added expense is justified by the expected increase in student response. Only 11.4% of the students indicated they would refuse to complete this form if it were sent to them at home.

Two-Way Analysis of Variance

As part of the opinionaire (see appendix C), students were asked to indicate the relative importance of six teaching behaviors--5 indicating "greatest importance" and 1 indicating "least importance." The cumulative percentages of all students indicating weights appropriate to each of the six teaching behaviors is show in Chart 1. Importance is indicated by the teaching behavior's relative position to the right and agreement among students is demonstrated by the relative vertical nature of a particular curve. According to this chart, it can be easily seen that the ranking of these dimensions are: skill, organization, feedback, empathy, class atmosphere and realistic homework.

Chart 1
Graph of Cumulative Percentages of the Weights University of Minnesota (Twin Cities) Students Place on Six Teaching Behaviors

A crosstabulation of responses by year in college and by college revealed the need for combinations of cells before any meaningful analysis of variance could be performed.[56] The following combinations seemed appropriate.

1. 0-2 year students: Combine freshmen and sophomores.
2. 2-plus year students: Combine juniors, seniors, adult specials (those with a degree who are taking one or more courses and who are not in pursuit of another degree) and graduates[57] (those identifying themselves with a college as graduates and not indicating they are enrolled in the graduate school).
3. Health Sciences: Combine the ten professional schools in the health sciences according to the following rules based on entrance requirements.
   a. Dentistry: All are 2-plus year students.[58]
   b. Dental Hygiene: All are 0-2 year students.[59]
   c. Medical School: All are 2-plus year students.[50]
   d. Medical Technology: 0-2 year and 2-plus year students.[61]
   e. Mortuary Science: All are 2-plus year students.[62]
   f. Nursing: 0-2 year and 2-plus year students.[61]
   g. Occupational Therapy: 0-2 year and 2-plus year students.[61]
   h. Pharmacy: All are 2-plus year students.[63]
   i. Physical Therapy: 0-2 year and 2-plus year students.[61]
   j. Public Health: All are 2-plus year students.[64]

Those colleges which after combination had cells with less than three responses were omitted.[65] The result is a matrix of two classes and six colleges as shown in Appendix D. We are satisfied that the resulting analyses sufficiently reflect the extremes of the student body: The reactions of engineering students are compared with those students majoring in the humanities in the context of responses from health sciences, agriculture, home economics and the general college.

In making the various statistical tests, we decided a priori to use a significance level of alpha = .001: Since the sample size is large and since there are many cells, a small alpha would prevent rejection for trival differences.

A two-way univariate analysis of variance revealed no significant difference between the response level of the 0-2 year students and 2-plus year students, nor between the students in different colleges (zero interaction). However a two-way multivariate analysis of variance indicated a significant variation in the weights applied to the six teaching behaviors by all respondents and by respondents when combined into colleges (p less than .0003). Ironically, a separate two-way univariate analysis of variance for each of the six teaching behaviors found no significant difference between classes and colleges and found zero interaction (see Appendix D).

These results are reported for information only: The crux of the teaching evaluation system is the comparative response level of seniors in their major departments.

One-way Analysis of Variance

As previously mentioned, we have decided to assign the teaching evaluation system to seniors. A one-way analysis of variance of seniors' responses by college is therefore appropriate.[56] This became a problem because we have considered "seniors" to be all students in the final year of any degree program; undergraduate, graduate or professional school (see page 12). The data, however, did not lend itself to a breakdown of graduate and professional students which corresponded with our definition.

In order to perform the one-way analysis of variance, therefore, we isolated those students who had 3-plus years of college level instruction from those who had three or less years of such education. The following decision rules were used when combining cells.

1. Students who indicate they are graduates enrolled in a particular college (as opposed to the graduate school) will be combined with the responses of that particular college.[57]
2. In general, seniors, adult specials and graduates will be isolated and combined for each college in order to make up the 3-plus year class of students.
3. Cells within the professional and graduate schools (other than health sciences) will be combined according to the following rules based on entrance requirements:
   a. Graduate School: All are 3-plus year students[66]
   b. Law School: All are 3-plus year students[66]
   c. Veterinarian Medicine: The 3-plus year students are those indicating sophomore, junior, senior, adult special or graduate.

4. Health Sciences: Combine the ten professional schools in the health sciences according to the following rules based on entrance requirements:

   a. Dentistry: 3-plus year students are those indicating sophomore, junior, senior, adult special or graduate.[58]

   b. Dental Hygiene: None are 3-plus year students.[59]

   c. Medical School: All are 3-plus year students.[60]

   d. Medical Technology: 3-plus year students are those indicating senior, adult special or graduate.[61]

   e. Mortuary Science: 3-plus year students are those indicating sophomore, junior, senior, adult special or graduate.[62]

   f. Nursing: 3-plus year students are those indicating senior, adult special or graduate.[61]

   g. Occupational Therapy: 3-plus year students are those indicating senior, adult special or graduate.[61]

   h. Pharmacy: 3-plus year students are those indicating sophomore, junior, senior, adult special or graduate.[63]

   i. Physical Therapy: 3-plus year students are those indicating senior, adult special or graduate.[61]

   j. Public Health: All are 3-plus year students.[64]

We decided a priori that those colleges which, after combination, had cells with less than three responses would be ignored. The ten professional schools under the supervision of the Health Sciences Vice President were

considered as one college for the purpose of this study. Therefore, no colleges had to be omitted. The result is a matrix of one class and fourteen colleges as shown in Appendix E.

Separate one-way univariate analyses of variance for each of the six teaching behaviors confirmed our assumption that the 3-plus year students in different colleges were responding to the behaviors at the same level. And a one-way multivariate analysis of variance applied simultaneously to the six teaching behaviors produced no significant variation between colleges in the pattern of weights applied to the behaviors. The univariate approach also revealed no significant differences between colleges for each of the six teaching behaviors (see Appendix E).

It is important to point out that the F-ratio for the multivariate test of equality of mean vectors = 1.6205 (degrees of freedom = 65 and 2097), that it has associated with it a p-value less than .0015, and that the hypothesis of equality between colleges is not rejected at the .001 level. Even though the hypothesis is not rejected, it is not a case where we are entirely satisfied with the results.

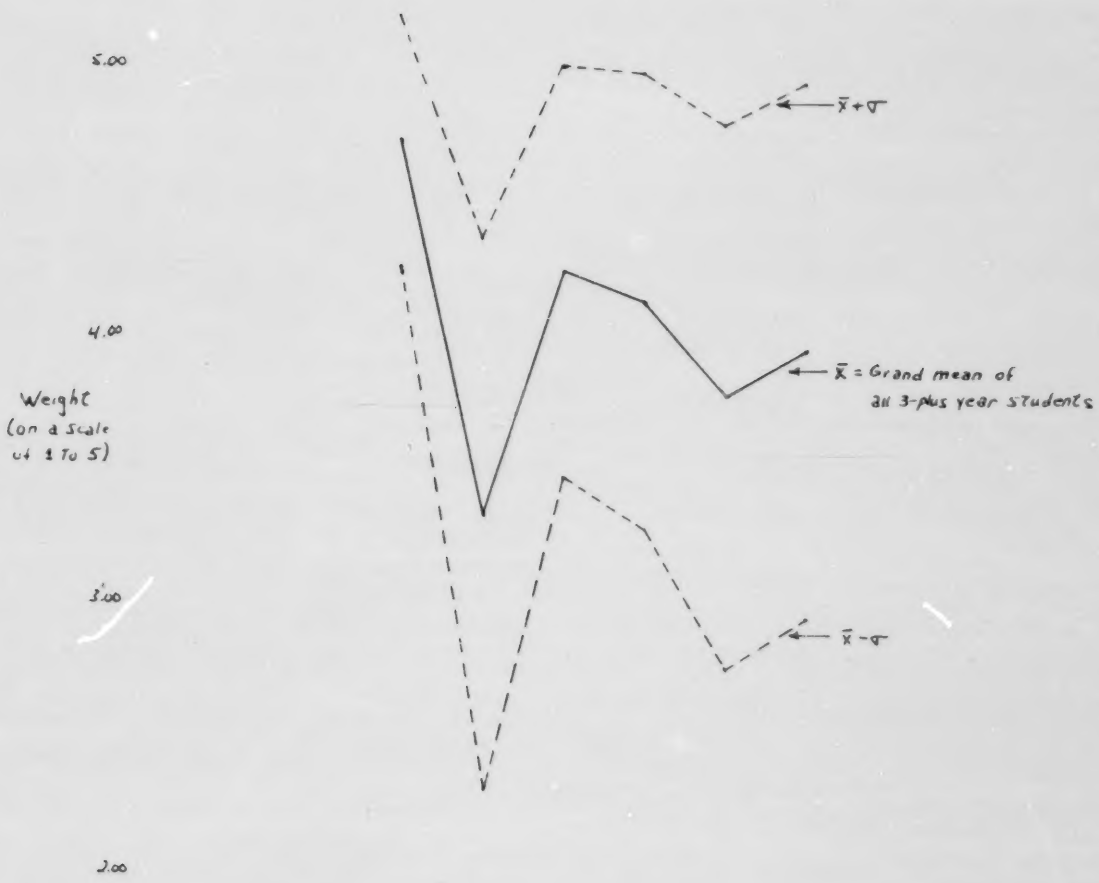
Upon further consideration of the data, we have concluded that the wording of the statements of behavior is introducing some discernable confusion. For instance, the law students indicated that the assignment of a "realistic amount of homework" is relatively unimportant or about half (2.5) as important as skill (4.5). In a school where 70 pages of reading material per class session is not an uncommon assignment, we suspect the students reacted to "homework" as the key word and not "realistic" as was intended.

In addition, the correlation matrix in Appendix E shows that "class atmosphere" and "empathy" have the highest correlation (.57), and that these same two high-similarity behaviors are similarly correlated with "feedback." We interpret the high correlations to be a warning that there may be some confusion in the students' minds as to the difference (if any) between the concepts of a "relaxed class atmosphere encouraging discussion," "respect and empathy for students as individuals," and "tactful and honest feedback." This is not surprising since Isaacson et al. point out that much of the research indicates "that one dimension on which college teachers differ has to do with friendly, sympathetic relationships with students."[69]

Chart 2 shows that the highest variances exist with regard to the "empathy," "class atmosphere," and "realistic homework" behaviors. We decided to re-perform the analysis of variance tests after eliminating these last three behaviors. The hypothesis that there is zero differences between college with regard to the remaining three behaviors is not rejected at the .1 level.

These new results tend to support our suspicion that at least three of the universal dimensions of teaching are not described properly. We feel that a large portion of the variance could be eliminated by rewording the questions as put to students.[70] This discussion also explains to our satisfaction why significant differences between colleges surfaced in the two-way analysis of variance.

Chart 2
Graph of the Mean Weights 3-plus Year Students Place on Six Teaching Behaviors



The differences between the six teaching behaviors is significant in the eyes of the 3-plus year students. Therefore the grand means of the 3-plus year students are the best estimates of the weights which such students place on each of the six dimensions of teaching. And it is these grand means which will be used to calculate the Teaching Proficiency Indices as described in the next section.

This analysis has considered the data as a random sample of students from the Twin Cities campus of the University of Minnesota. It is what Professor Brownlee calls a "Model I" analysis.[71] We could just as easily have treated the data as representing a random sample of students from a random sample of groups.[72] This "Model II" analysis would then have permitted us to draw conclusions about the infinite population of all college students. However, such an analysis is practical in the mathematical sense only when the cell sizes are equal and is of questionable validity from a common sense standpoint, given the wide disparities in academic standards, operating policies and customs between college in the U.S. (and the world).

Teaching Proficiency Index

As stated previously, we decided that the results of teaching evaluation systems must be easily interpretable. Comparability within and between departmental faculty, then, was considered a priority.

One way to compare the teaching abilities of different instructors is to determine the value students assign to each of the six dimensions of

teaching. Then, if one multiplies a teacher's rating on each dimension by the weight the students place on that dimension, and add, one arrives at a "Teaching Proficiency Index"--a relative indicator of the opinion of students regarding the teaching abilities of a particular instructor. Mathematically, it may be stated:

$$TPI = W_1R_1 + W_2R_2 + W_3R_3 + W_4R_4 + W_5R_5 + W_6R_6$$

Where: TPI = Teaching Proficiency Index of a given teacher[73]
W = Relative importance (weight) of i-th teaching dimension
R_i = Average rating of a given teacher relative to the i-th teaching dimension, in percentages

Before this equation can be used, we must decide the form in which we want the results to appear. The average weight applied to each of the six teaching behaviors by the 3-plus year students is as follows:

4.703	Skill
3.295	Realistic homework
4.200	Organization
4.093	Feedback
3.727	Class atmosphere
3.898	Empathy

Those averages, when totaled, add to 23.916. If a teacher receives an average rating of 100% from the seniors in her/his major department regarding each of the six teaching behaviors, that teacher's calculated "Teaching Proficiency Index" would be 23.916 [23.916 x 100% = 23.916]. Similarly a teacher who receives an average rating of zero from the same students would receive a "Teaching Proficiency Index" of zero [23.916 x 0% = 0]. However a scale of 0-24 is inadequate to permit meaningful differentiation between teachers in large departments or professional schools.

Even a scale of 0-240 is too small when the Teaching Proficiency Indices of several thousand teachers are to be calculated and published. A scale of 0-2392 will result if the decimal points connected within the percentages are ignored (i.e. if percentages are used as whole numbers), and we have decided that the Teaching Proficiency Indices will be calculated in that manner.

For example, if instructor X receives an average rating of 80% on each of the six teaching behaviors, the Teaching Proficiency Index would be calculated as follows:

4.703 (80) = 376.24
3.295 (80) = 263.60
4.200 (80) = 336.00
4.093 (80) = 327.44
3.727 (80) = 298.16
3.898 (80) = 311.84
1913.24

Instructor X's Teaching Proficiency Index would be 1913--it is a relative indicator of the opinion of students regarding the teaching abilities of Instructor X.

A computer program was developed to handle the data analysis. (See appendix F) The program will display the data in a simplified format that permits it to be printed in book form without alteration. (See appendix G.) The raw data and other analysis useful to the Department Chairperson is also printed out, although it is not shown in this report.

CHAPTER II

THE STUDENT OPINIONAIRE

A computer-generated random sample of 5% (1,923) University of Minnesota (Twin Cities Campus) students were mailed a teaching evaluation opinionaire during Winter Quarter, 1973-74. The opinionaire was to determine: (1) student opinions of student evaluations of teaching, (2) the relative value students assign to each of the six teaching behaviors, and (3) details of the implementation system preferred by students.

In this chapter, student opinions of teaching evaluation will be discussed. (The complete results appear in Appendix C.) The results of student-assigned values to each of the teaching behaviors were discussed in Chapter I. The proposed implementation system will be explained in Chapter III.

Comparison of Minnesota/Illinois Opinionaires

At least one previous study has tried to assess the importance to students of student ratings.[73] We felt it would be useful to compare the opinions of the University of Minnesota students with the published results of the University of Illinois survey. However, our study used a different approach than the Illinois study, and this posed two problems in comparing the results: (a) the statements used in the published study promoted the notion that students are unsophisticated evaluators; and (b) the student respondents in the published study were

not representative of the student body but instead were psychology students[74] at the University of Illinois. We decided to ask a representative sample of University of Minnesota students to respond to similar but less-biased statements. The results, which produced no interpretable differences by sex, are shown in Tables 1 and 2.

The majority of Minnesota students agree that teaching ability is a quality which can be judged by student evaluators (79%) whereas a similar fraction (75%) of the Illinois students disagree with the statement that ratings are a waste of time. In addition, 84% of the Minnesota students feel they have had enough contact with some instructors to be able to evaluate their teaching and 87% feel qualified to evaluate the teaching ability of some teachers.

Similarly at Illinois, 55% disagree that a professor who tells good jokes will get a good rating but in Minnesota 59% disagree that the major reason one learns more from an instructor is that the professor is witty and humorous. Eight out of ten Minnesota students (80%) agree they learn better from profs whose personalities they like and only one quarter (23%) said the grade they receive (or expect to receive) affects their evaluation of a teacher.

One third of the Illinois students would rate a number of courses differently now than at the time they took them. Similarly 38% of the Minnesota students would rate a number of teachers differently now than at the time they took the course from them.

TABLE I

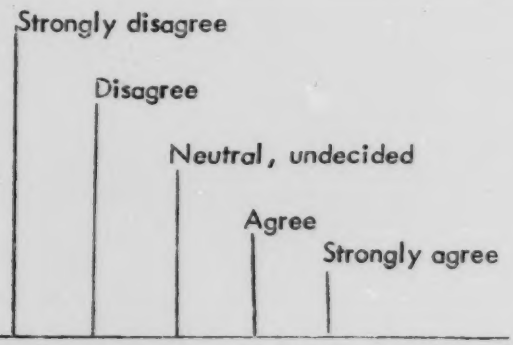
University of Illinois Psychology Students' Opinions Concerning Student Rating of Instruction*

N of students = 404	Strongly agree	Agree somewhat	Neutral	Disagree somewhat	Strongly disagree	Don't know (and omit)
Items	% of Response					
A. Ratings are a waste of time.	4	10	9	42	33	2
B. A professor who tells good jokes will get a good rating.	3	24	15	30	25	3
C. In retrospect, I would rate a number of courses differently now than at the time I took them.	6	27	13	33	16	5
D. The forms will affect most teachers' future teaching performances.	3	42	14	24	11	6

*Source: Costin et al. (1971), p. 523

TABLE 2

University of Minnesota Students' Opinions
Concerning Student Rating of Teaching



Items	% of Response					N
A-1. Teaching ability is a quality which can be judged by student evaluators.	0	6	15	60	19	942
A-2. I have had enough contact with some profs (by the term "prof," we mean any college teacher; including instructors, assistant professors, etc.) to be able to evaluate their teaching ability.	1	7	3	61	23	945
A-3. I feel qualified to evaluate the teaching ability of some profs.	0	3	10	65	22	947
B-1. The major reason I learn more from a prof is that the prof is witty and humorous.	10	49	23	16	2	943
B-2. I learn better from profs whose personalities I like.	1	11	3	62	18	946
B-3. The grade I receive (or expect to receive) affects my evaluation of a prof.	10	45	22	22	1	947
C. In retrospect, I would rate a number of profs differently now than at the time I took the course(s) from them.	5	36	21	32	6	942
D. I feel that most profs try to improve their teaching based upon the results of student evaluations.	3	20	36	38	3	943

Less than half (45%) of the Illinois students feel the forms will affect most teachers' future teaching performances. Even fewer (41%) of the Minnesota students are convinced that most instructors try to improve their teaching based upon the results of student evaluations.

Academic Myths and Other Student Opinions

Some student groups argue that evaluations of courses and teaching provide useful information when choosing courses.[75] The data supports this argument: 76.2% said the published results of student evaluation of teachers would be useful as an aid in choosing courses. And two-thirds (66.6%) supported MSA's development of a system to evaluate professors' teaching proficiency.

One previous study undertaken on behalf of Oklahoma State Regents for Higher Education reported that "students, faculty, and administration tended to agree strongly that research does affect the quality of teaching."[76] Our research does not support that conclusion: Whereas 42.7% of the students agree that "in my experience, research activities improve a professor's teaching abilities," only 7.2% strongly agree with that statement.

Even fewer students agree with another academic myth, viz., a teacher's community involvement helps the student. Only one-third (33.5%) agreed that "in my experience, community (public service) activities improve a prof's teaching ability."

In general, the results of the MSA opinionaire point to a feeling of confidence in student-generated evaluations of teaching. Students supported a student group administering the system, and indicated that they felt confident in their own abilities as evaluators. This confidence increased according to the students' class standing.[77] Furthermore, students supported the overall idea of teaching evaluation, noting that it would benefit other students when choosing courses. Students were more skeptical about their instructors' use of the evaluation feedback to improve teaching.

The opinionaire also revealed some interesting student views about the traditional business of academics outside the classroom: namely, research and public service. Students were evenly divided about the advantages of scholarship in teaching, and most felt that public service did not enhance teaching skills.

CHAPTER III

Implementation of the Teaching Evaluation Project

Details involved in implementing the Evaluation Project are discussed in the following chapter. Whenever possible, the student opinionaire was used to determine how students would prefer to have the project administered.

Parts of the proposed implementation system are applicable only to the University of Minnesota (such as the particular student group chosen to administer the project), but most of the suggestions contained in this chapter may be used directly by other educational institutions.

The Administrators

Who should administer a teaching evaluation system? As reported in Appendix C, students generally feel that student groups (82.9%), faculty groups (74.5%) and the administration (48.4%) are the appropriate trustees of such a system (5.4% of the students indicated "other" and the written comments generally indicated a combination of the three would be the most appropriate). Students have little trust in either the Board of Regents (15.5%) or the state legislature (7.2%).[78]

When asked specifically which student group at the University of Minnesota would be appropriate to administer the teaching evaluation system, students placed the most trust in MSA (74.7%). The students' own College Board was a second choice (59.1%) and the Council of College Boards[79] was third (37.8%). Little faith was placed in the Interfraternity Council and/or

Panhellenic Council (6.2%). Students indicating "other" (7.3%) generally wrote that MSA was too unstable an organization to effectively administer such a system or that no student group was appropriate.

In 1973 MSA created three "neighborhood" non-profit corporations for the purpose of providing business expertise and continuity in the areas of housing, services, and telecommunications.[30] Each are independent legal entities but carry the letters "MSA" in their title.[31] The MSA Corporations share a membership consisting of the elected student senators which meet annually to elect three separate Boards of Directors. Each Board has one voting position reserved for the President of the University (or a representative) and a faculty member whose academic department and/or skills relate to the activities and purposes of the Corporation.

Even though the three MSA Corporations are legally separate from MSA, the persons involved in the overall governance of the organizations is virtually the same. And to the "average" student who is unconcerned with legal niceties, they <u>are</u> the same. One of the MSA Corporations, then, would appear to be the appropriate organization at the University of Minnesota (Twin Cities campus) to administer the teaching evaluation system: they are "MSA" organizations; supervised by students, faculty and the administration; with the necessary facilities and business acumen to guarantee the success of the project.[32] The MSA Corporation administering the project will need to work in close cooperation with the individual College Boards and the Council of College Boards.[33]

The Student Evaluators

The majority of undergraduate seniors (72.9%) indicated they would complete the teaching evaluation form if it were sent to them at home. Another 16.6% were undecided.

Each senior should be sent three communications: a letter explaining the project and asking cooperation, a teaching evaluation form with cover letter, and a follow-up letter. The teaching evaluation forms will have to list only those faculty in the senior's major department or professional school; otherwise the form will either be too lengthy or many of the names unrecognizable. Success will depend upon the efficiency with which this phase of the project is carried out.

Appendix C shows the enrollment at the University of Minnesota as of October 5, 1973. Graduate students comprise 16.7% of the student body. Since there is some overlap between faculty teaching graduate courses and those teaching undergraduates, it is probably best not to include graduate students in the teaching evaluation system during the initial phase.[84] Only after the MSA Services Corporation has acquired a year or two of experience administering the teaching evaluation system, and only after a way has been found to mesh the graduate students into the system without unnecessary duplication, should the teaching evaluation form be sent to graduate students.

The Time-Table

The comments of investigators evaluating the course evaluation programs at several schools are appropriate:[85]

> "Evaluations must be run, especially at large schools, as if the directors of the evaluation were trying to market a new product. The same care and planning devoted to a marketing campaign should be taken into consideration for a large scale evaluation. Many of the same conditions hold true for both. The failure to approach an evaluation in these hard nosed unacademic terms is what often times accounts for failure."

It is our feeling that a part-time employee working alone at his/her convenience could realistically complete the project in a 12-week time period.

2 weeks	Ascertain names of teachers within each major department, write names on Teaching Evaluation forms and send to Central Duplicating; ascertain number of seniors in each department.
3 weeks	Print Teaching Evaluation forms for each department in sufficient quantities; arrange to have labels put on envelopes.
1 week	Mail pre-letter to all seniors
1 week	Mail cover letter, Teaching Evaluation form and postage paid envelope to all seniors.
1 week	Mail follow-up letter.
2 weeks	Coordinate return of Teaching Evaluation forms.
1 week	Coordinate keypunching
1 week	Coordinate computer analysis
12 weeks	

This schedule requires a fairly competent person to do the necessary amount of planning and prodding within the university bureaucracy. It also assumes there are approximately 125 different major departments within the several colleges.

The optimum time for the Teaching Evaluation System to be implemented annually would be Winter Quarter: Spring Fever will not have infected the seniors, the results will be published prior to graduation thereby providing an incentive to cooperate, and the Teaching Evaluationbooklet will be available to summer students, to the now students who pre-register during the summer and to the regular students who return in September.

The Cost

The cost per student is approximately 39¢ per senior (Appendix H). Assuming the form is sent to all undergraduate and professional seniors (no graduate students) the annual cost exclusive of salaries, printing and promotion will approximate: 7574 x .39 = $2953.86.

The potential income can be calculated from Appendix C: 14.8% (assume 40,000 students) are willing to pay $1 ($5920), 17.7% will pay 75¢ ($5310), 43.1% feel the information is worth 50¢ ($8620), and 62.9% would part with 25¢ ($6290). A price of 50¢ would derive the most income. However before a decision on price is made, two facts should be considered: (a) A relatively large number of students wrote that they felt a teaching evaluation booklet should be distributed free since they pay student fees to support MSA; and (b) there is a potential for attracting income from advertising in the teaching evaluation booklet.

FOOTNOTES

1. While this report was being written, a proposal to "restructure" the Twin Cities student government was placed before the student body. The chairperson of the Restructuring Committee asked the student body to abolish MSA in favor of the Twin Cities Student Assembly (TCSA)--a sub-group of the Campus Assembly comprised of the same student senators who constitute the MSA Forum, the total membership of which is only half as large as the Twin Cities Faculty Assembly [English (1974)]. Kathy Kelly, MSA President, argued against the proposal [Kelly (1974)]. However, on April 12, 74.3% of those voting in the referendum approved a constitutional change that would make the TCSA the sole student governance body on the Twin Cities Campus [Ringham (1974)]. The actual vote was 1,985 (5.4%) in favor, 511 (1.4%) against, and approximately 34,062 (93.2%) abstaining. (The office of Diplomas and Statistics reports there were 36,558 fees-paying students in Spring Quarter, 1973--comparable figures for Spring Quarter, 1974 were unavailable as this report was being written.)

2. The 1971-72 president of MSA was re-elected (1972-73) on a platform of "Student Control over Student Concerns," in the largest voter turnout in the University of Minnesota's 121-year history. [Stoner (1972)] The MSA President, Vice President and a majority of the student senators elected to serve during 1973-74 were members of the "Student Consumer Party."

3. Evans (1969) points out that pledges to spearhead the development of a course critique were instrumental in two successive student body presidential campaigns at the University of Washington, Seattle (1964-65).

4. Werdell (1967), pp. 18-24

5. The "Committee on Student Evaluation of Courses" at the University of Michigan [Brown (1968)] recognized that evaluation of courses and faculty is an inherent right of students regardless of the faculty position. (p. 4)

6. The majority leader of the Minnesota senate, during the summer of 1973, made public demands upon the Board of Regents to institute a system of evaluation that would make faculty publicly accountable for their time within and without the classroom.

7. Stecklein (1960) cites evidence that 40% of 804 U.S. colleges and universities surveyed have used students' ratings of teachers.

8. The Minnesota Student Association was created by referendum in April, 1959. [See Rickgarn (1959) for a "brief" detailing the arguments in favor of its creation.] The first printed course evaluation project sponsored by MSA was begun in 1966 and published the following year [Farliament (1967)]. Two years later, MSA again sponsored and published a course evaluation booklet [Rudolph (1969)]. Thereafter MSA eased itself out of this area: In 1970, MSA funded an evaluation project, the results of which were published by another organization [Kroll et al. (1970)] and, the next year, the Communications Center for Academic Reform published a course evaluation booklet with money provided by the Student Services Fees Committee [Cannon (1971)]. There has been no serious attempt at the Twin Cities campus to publish "Course Evaluations" since 1971.

Similarly, in 1969 the University of Minnesota, Duluth, Student Association hailed its "Teacher Evaluation" booklet as a "'first' for the UMD Campus" [Friedman and Dack (1969), p. ii]. A companion "Department Evaluation" was published the same year [Sommer (1969)]. Two years later, the UMDSA published a combined "Teacher Evaluation and Department Evaluation" [Teske and Kruse (1971)]. The University archives has no record of the UMDSA having published similar booklets since 1971. However, as of April 1, 1974 the UMDSA was "working to establish a reliable, permanent system of student evaluation of Courses" [Wegerson (1971)].

9. The University of Minnesota has traditionally operated under a policy wherein the results of instructor-requested course and teaching evaluations are restricted to the instructor concerned [see, for example, Clark and Keller (1954)]. A promotional brochure of the University's Measurement Services Center says "All Faculty Evaluation data are STRICTLY CONFIDENTIAL." (emphasis their's) [Measurement Services Center (no date-a)]. Also Milton (1963) reported that between 80-93% of the faculty on each of six campuses felt that students should be encouraged to complete teaching evaluation instruments but that the results should be seen only by the teacher concerned.

10. "Course evaluation" refers to any situation where a single course is evaluated in vacuuo. The methodology can be a strictly mathematical analysis [Friedman and Dack (1969)], an exclusively subjective analysis [Bachman and Turner (1967)] or a variation of the two extremes [Zirinsky (1971)].

11. We could not find a single instance where it was even suggested by either students or faculty that a teaching evaluation system could be developed that would permit the comparison of teaching abilities between departments. In fact, Meehl (1941)--a student at the time--stated that "it is not possible to compare either the absolute nor relative improvements in two different courses, and get a meaningful result" (p. 19).

12. Hayes' (1963 a & b) effort to develop a satisfactory unidimensional instrument to measure teaching effectiveness was the only serious attempt we found to objectively compare teaching effectiveness within a department. Apparently the attitude expressed by Fahey (1970) that student ratings are not "additive to a single score" is prevalent in American universities.

13. Peretz et al. (1969) provide a detailed school-by-school analysis of why student-initiated programs failed.

14. Witheller and Yuker (1970) reported that one university-wide effort to evaluate all courses reached 73% of the courses taught in the fall semester. However, only 29% of the students found these course evaluations meaningful. On another campus, the Student Association's Academic Affairs Vice President confided that the "evaluations of the past were simply 'conducted' with little forethought, and although they were used by many, we see now that little credibility was placed on them in the final analysis" [Wegerson (1974)].

15. Kroll et al. (1970) gives the optimistic (though historically unrealistic) prediction of those involved with course evaluations at the University of Minnesota, Twin Cities--the then largest single-campus student body in the country: "Future course evaluations will be expanded, hopefully, to a coverage of 800 classes per year, on a rotating basis, so that every class would be covered within a three year time span" (p. 1).

16. The authors cite Guthrie (1954), Lovell and Haner (1955), Maslow and Zimmerman (1956), French (1957), Cohen and Humphreys (1960), Spencer (1968), Spencer (no date), Costin (1968), Harvey and Barker (1970), Spencer and Aleamoni (1970) to support the reliability of student ratings.

17. See also Whitely et al. (1973), and Doyle and Whitely (1972).

18. Page 530. Also, Naylor (1970) found no significant difference in variance of ratings of students who had undergone "orientation treatment" and those who hadn't.

19. Costin et al. (1971), p. 530: student ratings "can be of use to academic departments in constructing normative data for the evaluation of teaching and may aid the individual instructor in improving teaching effectiveness." See also a statement by a student political party at the University of California at Berkeley (1964) as reported in Werdell (1967), p. 22. "By encouraging students to desert bad teachers for better ones, we hope to help administrative and faculty policy makers recognize that teaching is a learnable skill, distinct from research, still important in the University."

20. The two models are complementary: the older model is directly beneficial to faculty (pinpoints teaching deficiencies) and only indirectly beneficial to students, whereas the MSA Method is directly beneficial to students (pinpoints ineffective teaching) and only indirectly beneficial to faculty. Both models are necessary and should be developed: the former is rightly the private domain of the faculty and administration, the latter is inherently the territory of students.

21. Ken Doyle has done extensive work to develop a "model" for faculty evaluation--evaluation of the entire person in the role as teacher [Doyle (1972 and 1973)]. He is on the staff of the University of Minnesota's "Measurement Services Center," a service, research and training unit created in 1971 to provide educational evaluation and measurement [Measurement Services Center (no date-b)]. No attempt is being made here to evaluate the person as teacher.

22. Meehl (1941) states that "the average university faculty member spends 44% of his (sic) time in teaching or in preparation for teaching" (p. 4). There's no reason to believe the situation has changed much since that time.

23. Some investigators use "Teacher Evaluation" as a synonym for "Teaching Evaluation." Failure at the begining to maintain a clear distinction between the two concepts created unnecessary hostility in several University of Minnesota students who felt it was "unethical" to force people to "compete" with each other.

24. The studies described in the text are well respected and often cited by other investigators. There is a body of research however that is not in support of our assumption: Lewis (1960) found that teaching effectiveness depends upon the setting to a large extent. Smithers (1970) reported that students of applied sciences and engineering look to lectures for information whereas social scientists see lectures as a stimulating device. And Martin et al. (1958) concluded that students generally do not prefer closed circuit TV instruction. [An opposite conclusion was reached by Corcoran and Gould (1964).] Also Bausell and Magoon (1972) found a rating bias according to differences in perceived instructional methods.

25. Hildebrand et al. (1971) found that an analysis of the objectives of teaching as perceived by students produced two scales: (p. 43)

1. Contribution to general development (help students mature, understand themselves and other people; develop creative abilities; discover and develop abilities; analyze their opinions and actions; teach them to communicate),
2. Transmission of Fundamentals (teach facts and fundamental principles; explain technical terms; transmit information; summarize important concepts; train students in the skills needed for their careers).

26. Astin and Lee (1966) list the frequency with which various sources of evaluative information are used in different types of institutions (p. 365). The fifteen methods of faculty evaluation cited are: (a) chairperson evaluation, (b) dean evaluation, (c) colleague evaluation, (d) scholarly research and publication, (e) informal student opinion, (f) grade distribution, (g) course syllabi and examinations, (h) committee evaluations, (i) student examination performance, (j) self-evaluation, (k) classroom visits, (l) systematic student rating, (m) enrollment in elective courses, (n) long-term follow-up of students, and (o) alumni opinions.

27. Hildebrand and Wilson (1970) reported that 92% of the faculty at six diverse colleges and universities stated in 1968 that effectiveness of teaching should be "quite important" or "very important" as a criterion to advancement, whereas only 38% said that effectiveness of teaching actually is "quite important" or "very important."

See also Guthrie et al. (1969): the Oregon Legislature appropriated 47-$1000 gifts to be awarded for outstanding undergraduate teaching in that state's universities!

28. Some examples are: Bendig (1953); Coffman (1954); Cosgrove (1959); Crannel (1953); Doyle (1972); Estrin (1965); French (1957); Garverich and Carter (1962); Gibb (1955); Isaacson et al. (1964); Lovell and Haner (1955); Meehl (1941); Solomon (1966); Solomon et al. (1964); Wherry (1950).

29. Factor analysis mathematically establishes the tendency of the various statements to associate in clusters.

30. Isaacson et al. (1964) and McKeachie et al. (1971).

31. See Centra (1972).

32. McKeachie (1971), p. 6.

33. Isaacson et al. (1964).

34. One of the authors, Wilbert J. McKeachie, is Chairperson of the Department of Psychology at the University of Michigan. He has been doing research in the field of teaching evaluation for a quarter-century. This particular study is cited quite often by other researchers. A follow-up study by McKeachie (1971) strengthened his "conviction that these dimensions are quite fundamental since they have happened in yet another sample of teachers in a course somewhat different from the courses in which the earlier data were collected and with a method of data analysis which is somewhat cleaner with respect to our objectives." (p. 18).

35. McKeachie accepts as valid the criticisms of Norman (1967) and Gallob (1968) that were made with reference to the 1964 study, i.e. that the results of factor analysis are clouded by confounding a number of sources of variance (statements of behavior, raters, teachers and interactions). However McKeachie refused to state that the use of a different method of data analysis (multiple discriminant analysis) contributed anything to the general understanding of teaching.

36. The crux of the problem is to identify the universal dimensions of effective teaching. Factor analysis is helpful in that it establishes the tendency of various statements to associate in clusters. Multiple discriminant analysis, on the other hand, is used to predict whether an item comes from a particular grouping. In the context of our problem, factor analysis appears to be more meaningful.

37. Isaacson et al. (1964), p. 345. Some statements were obtained from the University of Minnesota's Form B--Student Report on Classroom Teaching.

38. Research pertaining to the general problem of teaching effectiveness has been quite extensive. A survey by Domas and Tiedeman (1950) includes more than 1000 studies. A similar review of articles after 1950 by Barr and Jones (1958) contains 58 references. Another by Mueller (1971) refers to 75 articles. Some investigators asked students to merely state those behaviors which are important to effective teaching [Coffman (1954), Crawford and Bradshow (1963), Downie (1952), French (1957)]. Others asked students to describe an "ideal" instructor [Costin (1968), Godzella (1968), Mueller at al. (1971)]. Two researchers asked students to describe the teaching behavior that had "best promoted their thinking" [Musella and Rusch (1968)]. The fault with these studies, however, is that they fail to show that the identified "dimensions" of teaching can be independently measured by student ratings. Also, without a sophisticated statistical analysis, one can't objectively determine if two statements of desired teaching behaviors are in reality two different descriptions of the same dimension.

Some researchers relied on factor analysis to identify dimensions of effective teaching. Others "objectively" described teaching dimensions in one sentence after having reviewed the results of previous studies [Hillery and Yukl (1971)]. Except for the 1964 study by Isaacson et al., none have identified the same universal dimensions over a time span of more than one semester.

Some authors argue that teaching is best evaluated in terms of student progress or course objectives [Hoyt (1969), McNeil (1967), Tyler (1934), Wittrock (1962)]. However it is our opinion that the published research supports the view that universal dimensions of effective teaching exist without regard to course objectives. A recent study done at the University

of California best supports our view that universal dimensions of effective teaching exist which effectively discriminate between teachers across disciplines [Hildebrand and Wilson (1970), Hildebrand et al. (1971)]. Over a three year period, two groups of students and faculty were asked to name a "best" and "worst" teacher. There was high agreement between the two groups of students and between the students and faculty. The behaviors that applied to the "best" teachers but not the "worst" were factor analyzed to identify the dimensions of effective teaching. The results were similar to the 1964 study by Isaacson et al. [See footnote 24 for Research Contra].

39. Gail Langer Karwoski, Project Communications Coordinator and Co-author.

40. Fahey (1967) was the only study we could find wherein an attempt was made to test the effectiveness of certain single-word adjectives purported to be descriptive of teaching dimensions. More research needs to be done in this area.

41. There is no agreement as to what constitutes an appropriate scale. Two studies by the National Student Association found student groups using anything from 3 to 6 point measurement scales [Peretz et al. (1969) and Werdell (1967)]. One widely distributed and standardized form, the "Illinois Course Evaluation Questionnaire" consists of 50 short statements to which the student indicates agreement or disagreement on a 4-point scale [Spencer and Aleamoni (1970]. Another questionnaire includes seven dimensions of teaching, each with several behaviors and all questions answerable by "yes" or "no" [Ronan (1972)]. An experienced researcher and advocate of student evaluations of teaching suggests that 17 questions on a 5-point scale are sufficient to evaluate teaching [McKeachie (1969) a & b].

42. Even though the author of one questionnaire, McKeachie (1969 a), states that his purpose is to "make possible comparative judgements of teaching effectiveness of different instructors" (p. 440) he suggests no way to objectively compare the data. In fact, Hayes (1963 a & b) was the only study we could find in which the results were truly comparable.

43. A variety of different scales are in use, e.g. adjectives, forced choices, scalograms, etc. Most of the scales tend to measure the degree of a given quality, e.g. organization. However, excessive organization may in fact be detrimental to a given learning situation. It is more important to measure the proportion of time a teacher provides a sufficient amount of organization so as to effectuate learning. Such a scale, then, should not depend upon the course, the college, or the class.

Other scales use simple rankings of faculty in a department or college in order to determine the relative position of an individual teacher between the "best" and "worst." Such a scale does not permit comparisons outside the original sample, i.e. the teaching effectiveness of the highest-ranked instructor in one department may in fact be no better than the lowest-ranked teacher in another department.

44. We discussed this approach with Professor of Psychology Stanley R. Strong, Director of Student Life Studies. He and his staff agreed there was no inherent reason why percentages could not be used.

45. Zelby (1974), p. 1270.

46. Costin et al. (1971), p. 530. The authors cite contrasting studies.

47. McKeachie (1969 a), p. 440.

48. Measurement Services Center (1973).

49. Cohen and Humphreys (1960).

50. McDaniel and Ravitz (1971). See also Guthrie et al. (1969): "Recent association is a heavy factor in the choice of one's best teacher." Since seniors generally associate with teachers in their major areas, the bias (if any) will weigh in favor of the teachers in the senior's major department.

51. Meehl (1941) calculated that "to obtain reliabilities of .95 it is required to employ the pooled judgements of something like 50 to 60 students" (p. 41). This means that a different group of 50-60 seniors would give the identical pooled judgements 95 times out of 100. In those departments where there are not 50-60 seniors, it would be wise to mail the Teaching Evaluation form to juniors also.

52. Werdell (1967), pp. 50-57 and pp. 64-72.

53. Spencer and Aleamoni (1970) and Werdell (1967), pp. 59-60.

54. Noel Jon Sederstrom.

55. Appendix C shows that 72.8% of the undergraduate seniors said they would "complete this form if it were sent to me at home." Kenneth O. Doyle, Jr., Research Associate at the University's Measurement Services Center, said he felt that figure was on the "high" side. His experience with student responses to course evaluations leads him to be pessimistic about "promises" to return questionnaires. At this point, we have no reason to believe the form by itself will induce students to refuse to cooperate and if we can rely on "promises," the opposite is probably true.

56. The data was computer-analyzed using the standardized SPSS [Norman et al. (1970)] and multivariance [Finn (1972)] statistical packages.

57. It is quite common for students to enroll in graduate level courses in their specialty area while their application for graduate school is being processed. They are officially enrolled in their respective college but, for personal reasons, consider themselves to be graduate students.

58. Two years of pre-dental course work is the minimum entrance requirement although some students complete three or four years. The dental program is three years.

59. There is no college level work required as a pre-requisite, although the University prefers high school students with high grade-point-averages. The Dental Hygiene program is two years.

60. An undergraduate degree is a pre-requisite. The medical program is three years (accelerated) or four years, exclusive of internship.

61. Four-year undergraduate program leading to a B.S. degree.

62. Two years of pre-professional course work is the minimum entrance requirement. The Mortuary Science program is two years.

63. Two years of pre-professional course work is the minimum entrance requirement although 40% have completed three years prior to entering. The Pharmacy program is three or four years.

64. All 13 Public Health programs require a B.S. or B.A. degree for admission.

65. The graduate, law and veterinary medicine schools by their nature have no 0-2 year students. In addition, the responses from Business, Biological Sciences, University and Forestry Colleges were omitted.

66. A four-year undergraduate degree is a pre-requisite.

67. Two years of pre-professional course work is the minimum entrance requirement. The freshman year, then, is the third year of college-level course work.

68. Isaacson et al. (1964), p. 345.

69. We recommend the following changes to the teaching evaluation form in Appendix A:

a) Teaching behavior #2--In percentages, how often does this teacher assign a realistic amount of reading and other out-of-class assignments? (Emphasizes "realistic" and removes the word "homework" which is not as commonly used by seniors as by freshmen.)

b) Teaching behavior #5--In percentages, how often does this teacher generate a relaxed atmosphere encouraging individual questions and/or comments? (More realistically responds to the needs of the Health Science and Veterinary Medicine students who explained that most of their time is spent in laboratories and other non-classroom interactions.)
c) Teaching behavior #6--In percentages, how often does this teacher respect students as adults? (Removes "empathy" and recognizes that seniors are "adults" within the academic community even though a very small percentage may not in fact be adults in the legal sense.)

70. Brownlee (1961), chapter 10.

71. If we place the names of all colleges that have seniors in Liberal Arts in one hat and the names of all colleges with juniors in Liberal Arts in another hat, and so on, we would then randomly pick from each hat the names of a college from which we could draw a sample of students for a particular group. The probability of drawing the University of Minnesota for each group of students is very low, i.e., it is theoretically possible but highly unlikely. Thus, it requires additional calculations to eliminate the sampling error inherently involved in the assumption that the University of Minnesota students are representative of all students everywhere.

72. This equation is internally consistent. The percentage of times a teacher exhibits skill is

$$\frac{\text{Number of instances where this teacher exhibits skill}}{\text{Total number of instances where skill is appropriate}}$$

The "importance" that students place on a particular dimension is

$$\frac{\text{Units of meaningful value that skill gives to students}}{\text{Instances where teachers exhibit skill}}$$

(This may be read as "the units of meaningful value that skill gives to students whenever skill is exhibited")

Multiplying the two together results in

$$\frac{\text{Units of meaningful value that skill gives to students}}{\text{Total number of instances where skill is appropriate}}$$

Adding together the results for each of the six dimensions of teaching results in a "Teaching Proficiency Index." It is a relative indicator of the opinion of students regarding the teaching abilities of a particular teacher.

73. Costin et al. (1971).

74. Physiological psychology, child psychology, social psychology and comparative psychology. The sample included freshmen (2%), sophomores (33%), juniors (33%), seniors (35%) and graduate students (2%); 57% were males and 43% were females.

75. The Salvage [Rudolph (1969)] and The Salvage II [Kroll et al. (1970)], two course evaluation pamphlets published as a result of MSA involvement, listed as one of the underlying purposes: "To provide freshmen and transfer students with a useful guide when selecting courses."

76. Letchworth and Hayes (1970).

77. In response to the statement "I feel qualified to evaluate the teaching ability of some profs," the portion of freshmen through seniors agreeing was respectively 69.4%, 77.7%, 83.4%, and 94.2%.

78. In response to a similar question asking which groups should have access to the results, 42.2% checked the Board of Regents and 22.4% indicated the State Legislature. The latter figure seems unreasonably high but is explained by many of the written comments pointing out that if the results are made available to students, they become available to the legislature and the public.

79. The Council of College Boards was abolished along with MSA (See footnote #1).

80. Karwoski (1973).

81. The titles of the three MSA Corporations are: MSA Services Corporation, MSA Housing Corporation, and MSA Telecommunications Corporation.

82. The three corporations have full-time salaried Executive Directors. In addition, the MSA Services Corporation operates the MSA Student Store in Coffman Memorial Union (other proposals are under consideration to open a similar store on the St. Paul Campus and another adjacent to the Minneapolis Campus). The professional expertise to implement the project on an annual basis and the facilities through which to market the product are readily available.

83. Since the Council of College Boards was abolished (footnote #1), the corporation will have to seek input from the appropriate committee of the Twin Cities Student Assembly dealing with Academic Affairs.

84. Administering the teaching evaulation system to graduate students poses a number of problems: First of all, graduate programs do not often conform to a given time period, making it difficult to administer the forms only to graduate students completing their last year. Mailing to all graduate students would be extremely costly, and probably unjustifiable, as they comprise 16.7% of the student body.

Furthermore, graduate students completing programs are primarily involved in individual research projects, rather than classroom learning situations. Many graduate students earn their living by teaching at the University, and may be evaluated by the same system which evaluates faculty teaching. Asking these graduate instructors to evaluate faculty teaching resembles peer-evaluation, a concept foreign to this system of evaluation.

Finally, graduate students present numerous logistical problems: During their last year in Ph. D programs, they often come into contact with one (or a few) advisor(s), and have been removed from the classroom situation for months. Many graduate students complete their final year(s) of thesis work while teaching at another institution, and the practical difficulties of reaching these students (and their ability to recall teaching skills from afar) are formidable.

85. Peretz et al. (1969), pp. 94-5.

APPENDIX A

Comparison of Teaching Evaluation and Course Evaluation Forms

The evaluation form for the MSA Method follows. For comparison, a course evaluation form funded previously by the same organization is included--it is typical of course evaluation forms. Notice that the course evaluation form is oriented mainly toward specifics of one course; i.e., readings. class sessions, etc. Only three questions elicit general reactions to teaching performances which might be applicable to other courses or learning situations. Those few questions concerning teaching are very similar to the MSA Method's form.

Some course evaluation forms, such as those developed by the University of Minnesota's Measurement Services Center use the limitations of the single-course setting to elicit specific criticism aimed at helping a teacher improve weak points in that individual's teaching. For this reason, we believe that teaching evaluation and course evaluation may be used concurrently at some institutions: As complementary evaluations, they isolate good teaching while helping to correct poor performances.

method.

For the following six teaching behaviors, please decide how many times one teacher displays each specific behavior, as opposed to the times the teacher does not. Express your answer in percentages. Please answer each question for every prof evaluated--ignore boxes for those profs you do not feel competent to evaluate.

Some of these teaching behaviors may not be appropriate all the time. Your answer is the number of times the teacher efficiently displays the behavior when it is appropriate.

MINNESOTA STUDENT ASSOCIATION
University of Minnesota, Twin Cities, 55455
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TEACHING BEHAVIORS

1. In percentages, how often is this teacher clear and interesting; a skilled and inspiring teacher?
2. In percentages, how often does this teacher assign a realistic amount of homework?
3. In percentages, how often is this teacher organized?
4. In percentages, how often does this teacher give tactful and honest feedback to students?
5. In percentages, how often does this teacher generate a relaxed class atmosphere encouraging discussion?
6. In percentages, how often does this teacher respect and empathize with students as individuals?

PROFS

example.

In percentages, how often does Ms. Peach write test comments legibly?

87 Ms. Peach

NOTE: We encourage individual profs to seek detailed comments about teaching effectiveness: this form is not intended to replace individualized course evaluations.

DEPARTMENT: QUARTER: YEAR: SPONSOR:

NOTE: Actual size of form is 8 1/2 x 14 (legal size). We suggest that a summarized report of the Method be printed on the reverse side of these forms.

KEY TO SUMMARIES

The four sets of numbers after each course evaluation represent the totals of students' reactions to four of the questions printed below: numbers 9, 11, 16 and 17. For example, rec: 83/14/3 in the first course, Afro 3-105 refers to No. 17 and means that out of 29 returned questionnaires, 83% would recommend the course, 14% were undecided and 3% would not.

COURSE EVALUATION QUESTIONNAIRE

The University of Minnesota Course Faculty Evaluation Project has been designed to encourage the student's participation in issues relating to the quality of his education. We ask that you fill out the following questionnaire as thoughtfully and objectively as possible. Your responses will remain anonymous.

Course No. ____ Title _____ Instructor _____

1. Major Field _____

2. Circle: Freshman Sophomore Junior Senior
   Adult Special Graduate

3. What grade do you expect to get in this course? _____

4. Cumulative grade point average? _____ (If first quarter Freshman put "Freshman")

5. Why did you take this course? (Check all relevant reasons)
   - __ 1.) Because I was interested in the subject
   - __ 2.) Because I like the professor
   - __ 3.) Because it fit into my schedule, other courses were closed
   - __ 4.) To fulfill distribution requirements, major requirements
   - __ 5.) Because a friend recommended it
   - __ 6.) Because it sounded easy
   - __ 7.) Other _____

6. How much do you feel you have learned from this course?
   - __ 1.) A great deal
   - __ 2.) Quite a bit
   - __ 3.) Some
   - __ 4.) Not much

7. In the space below, comment on the lectures and general quality of instruction

8. Do you have any comments about other aspects of the course? (Readings, exams, etc.) or any suggestions for it?

9. **How would you rate your professor in general, all around teaching ability?**
   - __ 1.) **Excellent**
   - __ 2.) **Good**
   - __ 3.) **Adequate**
   - __ 4.) **Less than adequate**
   - __ 5.) **Poor**

10. The professor is stimulating and interesting to listen to.
    - __ 1.) Strongly agree
    - __ 2.) Agree
    - __ 3.) Undecided
    - __ 4.) Disagree
    - __ 5.) Strongly disagree

11. **The professor is enthusiastic and personally interested in the class.**
    - __ 1.) **Strongly agree**
    - __ 2.) **Agree**
    - __ 3.) **Undecided**
    - __ 4.) **Disagree**
    - __ 5.) **Strongly disagree**

12. How valuable were the course readings?
    - __ 1.) Outstanding in value
    - __ 2.) Almost all parts were valuable
    - __ 3.) Generally valuable
    - __ 4.) Some parts worth reading
    - __ 5.) Practically of no value

13. How did the papers affect your learning of course material?
    - __ 1.) It was extremely valuable in helping to supplement course material
    - __ 2.) It was somewhat valuable in helping to supplement the course material
    - __ 3.) It did not affect my learning of course material
    - __ 4.) The papers were not necessary to supplement course material
    - __ 5.) No papers were assigned

14. How has this course affected your interest in this field?
    - __ 1.) Stimulated my interest a great deal
    - __ 2.) Stimulated my interest a little
    - __ 3.) Did not affect my interest one way or the other
    - __ 4.) Discouraged interest a little
    - __ 5.) Discouraged interest quite a bit

15. How often did you miss class?
    - __ 1.) Seldom, if ever, missed class
    - __ 2.) Occasionally missed class
    - __ 3.) Missed class fairly often
    - __ 4.) Missed class frequently
    - __ 5.) Rarely attended class

16. **How much work outside of class did you do for this course?**
    - __ 1.) **I did all the required work and studied thoroughly**
    - __ 2.) **I did almost all the required work, but not all**
    - __ 3.) **I did some of the required work, but not all**
    - __ 4.) **I did not really study very much for the course**

17. **Would you recommend this course to a friend with interests similar to yours?**
    - __ 1.) **Yes, I would**
    - __ 2.) **I am undecided**
    - __ 3.) **No, I would not**

NOTE: Actual size of form is 8 1/2 x 11 (standard size). Reprinted from Canon (1971), page 3.

APPENDIX B

Luncheon Worksheet and

Analysis of Luncheon Discussions

UNIVERSITY OF MINNESOTA

Minnesota Student Association
Grainger Building (West Bank)

July 9, 1973

A freshman is planning to take a course from a teacher you know pretty well. You've only got a few minutes to chat before your next class, but you want to be as specific and helpful as possible.

1. You want to convey the impression that the teacher
   a. Puts across the material in an interesting way
   b. Stimulates the intellectual curiosity of the students
   c. Explains things clearly, and
   d. Skillfully observes student reactions

So you tell the freshman that this teacher _____.

2. You want to convey the impression that the teacher

   a. Assigns very difficult reading
   b. Asks for more than students could get done, and
   c. Assigns a great deal of reading

So you tell the freshman that this teacher _____.

3. You want to convey the impression that the teacher

   a. Decides in detail what should be done and how it should be done.
   b. Follows an outline closely
   c. Has everything going according to schedule, and
   d. Plans the activities of each class period in detail

So you tell the freshman that this teacher _____

4. You want to convey the impression that the teacher

   a. Tells students when they have done a particularly good job
   b. Compliments students in front of others, and
   c. Criticizes poor work

So you tell the freshman that this teacher _____.

5. You want to convey the impression

   a. That the students in the teacher's classes are freindly
   b. That you feel free to express your opinions in the teacher's classes
   c. That students in this teacher's classes argue with one another or with the instructor, not necessarily with hostility, and
   d. That this teacher's students frequently volunteer their own opinions.

So you tell the freshman that this teacher _____.

6. You want to convey the impression that this teacher

   a. Listens attentatively to what class members have to say
   b. Is friendly
   c. Is permissive and flexible, and
   d. Explains the reasons for criticisms

So you tell the freshman that this teacher _____.

UNIVERSITY OF MINNESOTA

Minnesota Student Association
Grainger Building (West Bank)

July 12, 1973

To: Jack Baker, Coordinator
of Special Projects
From: Gail Karwoski
Publications Coordinator
Re: Meetings with students regarding teaching behavior

I have reviewed my notes for the two luncheons. My analysis and conclusions are as follows.

I. The Wednesday group (WG) stressed the importance of factors a and c: "Puts across the material in an interesting way" and "Explains things clearly." they also thought this category dealth with a knowledge of teaching techniques.

The Thursday group (TG) stressed the "inspirational" quality embodied in factor b, indicating that to "Stimulate the intellectual curiosity of the students," the teacher would have to be doing all the things mentioned in a, c, and d. This group also thought that this item summarized the salient characteristics of the ideal teacher.

I would summarize these reactions in a sentence: "The teacher is clear and interesting; a skilled and inspiring teacher." I wonder, though, if all these adjectives might not confuse students.

II. This item is problematic. In Zinn's report, it is expressed as a negative quality. The teacher "overloads" the students with work. For the purposes of our mathematical model, the item should be phrased positively, as are the other items. But is the opposite of too much work the right amount of work or too little work?

WG considered this item a negative attribute, with the exception of one student who likes teachers who ask a lot of him. Generally, however, the group called this item "overly demanding," "impossible," and stressed the term desirability of a teacher being "realistic" in its discussion of this item. Every student has a different preference for the amount of work she/he likes, but all expect a "realistic" amount.

TG suggested terms like "overly demanding," "impossible," and "exhausting."

While TG's choices were rather more colorful descriptions of Zinn's overload item, I chose WG's "realistic" because it was clearly the student's opinion of the opposite of demanding too much. In evaluating a teacher on this item, a student may consider an unrealistic expectation to be asking too little work. However, students in the discussion groups didn't think that assigning too little was a serious fault, and said that they would willingly choose a course from a teacher with this fault. We will have to assume then, for the purposes of this evaluation, that the opposite of assigning a realistic amount of work is assigning too much.

"The teacher assigns a realistic amount of homework," is my summary.

III. Both groups were ambiguous about whether this item described a positive or negative trait. Both groups tended to think of this as more often positive than negative, and more desirable in math and science courses than in humanities courses. Apparently, structure or organization is thought of only in terms of the traditional lecture situation--discussion classes are not seen as particularly "organized."

Both groups agreed that the least bias-laden term for this item is "organized." I suggest, therefore: "The teacher is organized."

IV. Both WG and TG stressed the words "feedback" and "honesr" to describe this item. TG also suggested "Constructive," while WG suggested "tactful."

I think that "the teacher gives tactful and honest feedback to students" summarizes the item and studentopinion accurately.

V. Words bandied about in description of item V included "relaxed atmosphere," "open," "congenial," "conducive to discussion," and "friendly."

I chose, "the teacher generates a relaxed class atmosphere encouraging discussion."

VI. Both groups agreed that this category, as well as item V, described "personality factors." Students suggested terms like "sensitive," "empathy," "responsive," "caring," "open," "honest," "identify," "concerned," etc. WG felt that a teacher would need to respect students as people to score well on this item.

I chose, "the teacher respects and empathizes with students as individuals."

APPENDIX C

Opinionaire, Results and Goodness-of-Fit

Opinionaire and Results

During Fall Quarter (1973), Student Life Studies requested from Admissions and Records (on MSA's behalf) a random sample of five percent of the enrolled Twin Cities students. Prior to mailing, each name was compared with the official records of those who had in fact paid tuition. This process, which Student Life Studies refers to as "cleaning the sample," resulted in the elimination of 170 names. The sample breakdown is as follows:

2,093	Names supplied by Admissions and Records
170	Names not registered as students Fall Quarter
1,923	Students to which opinionaires were mailed during Winter Quarter
952	Opinionaires returned during Winter Quarter and analyzed (49.5%)
15	Opinionaires returned after the date set for computer analysis and not included (0.7%)
967	Total opinionaires returned (50.2%)

The Teaching Evaluation project devoted considerable effort to encouraging the return of opinionaires. A total of five mailings were prepared, including: an introductory letter explaining the project and anticipating the opinionaire; the opinionaire with a cover letter and a sample evaluation form; a follow-up letter urging the return of the opinionaire (each follow-up mailing was sent only to non-responding students); the opinionaire and accompanying enclosures were mailed again; and a final follow-up letter.

In addition to these mailings, non-responding students were phoned. Reasons for refusal to respond included: Some students had moved out of their local residences, others indicated that they had not received the mailings. Some students actively chose not to respond, indicating that they disagreed with the concept of student evaluation or that they disliked the student government which was conducting the opinionaire. Callers were able to locate two students from the Law School, one of the colleges which caused analysis-problems, who indicated that the proposed evaluation was not relevant to their professional college.

It is possible that MSA's reputation among students interfered with the response rate. Also, the business-like format of most of our communications may not have appealed to students--in the final follow-up letter, we varied the format to include an illustration, but it is difficult to judge whether this enhanced the response. Response to written questionnaires are not, in general, particularly gratifying, and this factor alone might account for the disappointingly low percentage of returns.

The opinionaire is re-produced in the following pages. Where appropriate, the percentage results from all respondents are indicated in parentheses. Sections II and V have, in addition, the opinions of all undergraduate seniors. Since the study utilizes the average weights applied to the six teaching behaviors by the 3-plus year students, we felt it would be more meaningful to list those results in Section IV instead of the averages of all those who responded.

UNIVERSITY OF MINNESOTA

Minnesota Student Association
MSA Building (West Bank)
1818 So. 4th Street

Teaching Evaluation Survey

1. The following questions are not intended to turn you off. Although they may seem offensive or irrelevant, this information would be extremely helpful in analysing data (e.g.; there is no way to prove that sex or age plays no part in determining how people answer unless we know the sex and age of each respondant).

1. Age at last birthday: _____

2. Sex: Male (56.4) Female (43.6)

3. Class in college:

(12.9) a. Freshman

(17.5) b. Sophomore

(20.9) c. Junior

(24.0) d. Senior

(3.5) e. Adult Special

(21.3) f. Graduate

[The percentage of students registered in the Graduate school is lower than indicated here (Table C-5). Footnote #57 explains why some of those indicating "Graduate" should more accurately be classed as "Adult Special."]

4. College enrolled in (e.g. Ag, Graduate School, IT, etc.) _____

5. Major: _____

6. Number of classes you have taken in your major field: _____

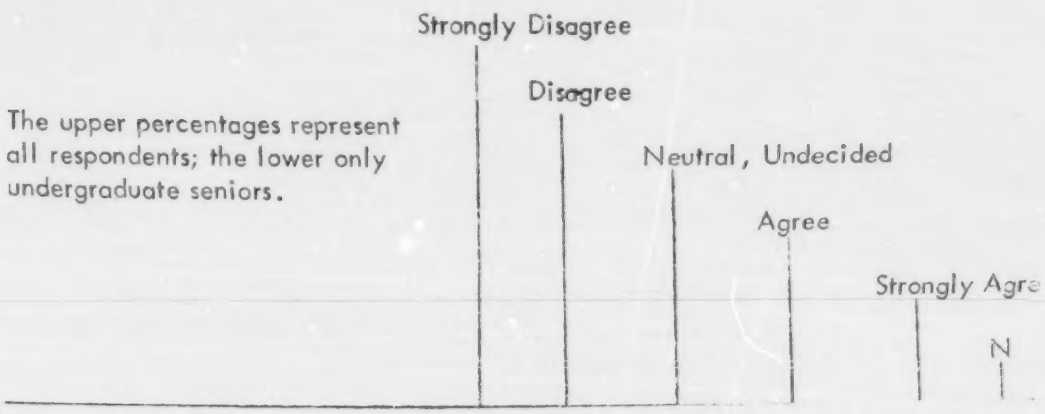
7. Approximate cumulative grade-point-average at the University of Minnesota (check one):

(24.5) a. 4.00 to 3.51
(38.6) b. 3.50 to 3.00
(26.4) c. 2.99 to 2.51
(9.5) d. 2.50 to 2.00

8. Have you ever in the past, either at the University of Minnesota or elsewhere filled out a teaching or course evaluation form?

(68.4) a. Yes
(31.6) b. No

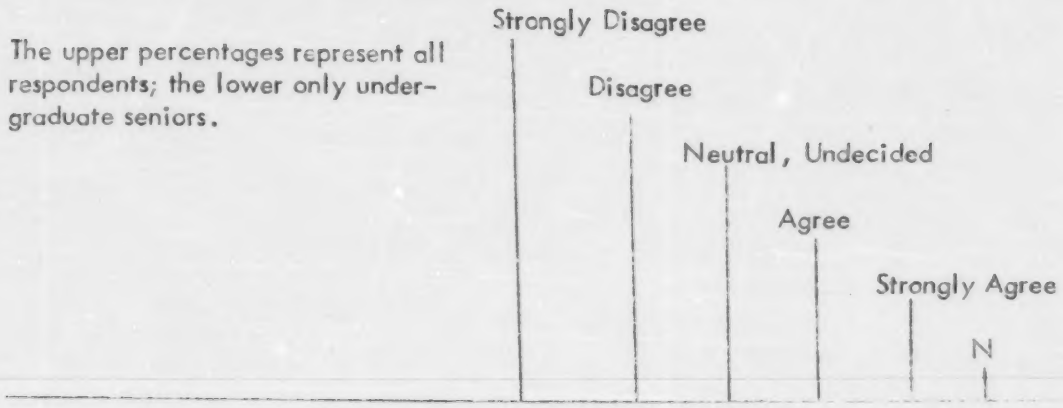
11. Do you agree with the following statements about teaching and the evaluation of teaching? Circle the response indicating how strongly you agree or disagree with each statement.



The upper percentages represent all respondents; the lower only undergraduate seniors.

1. I have had enough contact with some profs (by the term "prof," we mean any college teacher; including instructors, assistant professors, etc.) to be able to evaluate their teaching ability.	(1.2)	(6.6)	(8.0)	(61.0)	(23.3)	945
	(0.0)	(4.4)	(3.1)	(63.1)	(29.3)	225
2. In my experience, research activities improve a prof's teaching abilities.	(2.4)	(14.3)	(40.6)	(35.5)	(7.2)	939
	(5.4)	(12.5)	(36.6)	(40.2)	(5.4)	224
3. The published results of student evaluation of profs would be helpful to me when choosing courses.	(1.7)	(9.0)	(13.1)	(45.1)	(31.1)	942
	(1.3)	(11.2)	(12.9)	(44.6)	(29.9)	224
4. In retrospect, I would rate a number of profs differently now than at the time I took the course(s) from them.	(4.3)	(35.9)	(20.6)	(32.3)	(6.5)	942
	(6.3)	(39.5)	(17.5)	(30.5)	(6.3)	223
5. In my experience, community (public service) activities improve a prof's teaching ability.	(1.2)	(11.3)	(54.0)	(27.6)	(5.9)	943
	(1.3)	(9.3)	(55.6)	(27.6)	(5.8)	225
6. Teaching ability is a quality which can be judged by student evaluators.	(0.4)	(5.7)	(15.2)	(59.6)	(19.1)	942
	(0.0)	(7.1)	(16.5)	(51.8)	(24.6)	224

The upper percentages represent all respondents; the lower only undergraduate seniors.



7. The major reason I learn more from a prof is that the prof is witty and humorour.	(10.5)	(43.6)	(23.0)	(15.6)	(2.3)	943
	(12.4)	(43.4)	(20.4)	(16.0)	(2.7)	225
8. I feel that most profs try to improve their teaching based upon the results of student evaluations.	(2.7)	(19.3)	(36.6)	(33.2)	(2.3)	943
	(2.2)	(24.4)	(36.4)	(34.7)	(2.2)	225
9. I learn better from profs whose personalities I like.	(0.7)	(11.0)	(8.6)	(61.8)	(17.9)	946
	(0.4)	(12.9)	(11.1)	(61.8)	(13.8)	225
10. The grade I receive (or expect to receive) affects my evaluation of a prof.	(9.7)	(44.9)	(21.3)	(22.3)	(1.4)	947
	(9.3)	(46.2)	(16.0)	(26.2)	(2.2)	225
11. I feel qualified to evaluate the teaching ability of some profs.	(0.4)	(3.4)	(10.1)	(64.5)	(21.5)	947
	(0.0)	(0.4)	(5.3)	(66.2)	(28.0)	225

III. Who should make use of teaching evaluation by students? How should they be used? Who should administer an evaluation system? In this series of questions, please check all that apply.

1. Which of the following groups should have access to student evaluation of teaching proficiency? (Check all that apply)

(91.5) a. Students
(95.2) b. Individual profs
(83.5) c. Department chairperson N= 946
(59.9) d. Administration in general
(42.2) e. The Board of Regents
(22.4) f. The State Legislature
(7.6) g. Other. Specify _____

2. In which of the following ways should student evaluations of profs be utilized? (Check all that apply)

(86.7) a. By students, for choosing courses. N=944
(98.1) b. By the profs, to improve their teaching proficiency.
(62.9) c. By the administration, when decisions are made concerning a prof's departmental status and/or advancement.
(39.5) d. By the Board of Regents, for program evaluation.
(16.5) e. By the State Legislature, when evaluating University financial requests.
(2.9) f. Other. Specify _____

3. Which of the following groups would be appropriate to administer student evaluations? (Check all that apply)

(32.9) a. Student groups
(74.5) b. Faculty groups N=928
(48.4) c. The administration
(15.5) d. The Board of Regents
(7.2) e. The State Legislature
(5.5) f. Other. Specify _____

APPENDIX B

Luncheon Worksheet and

Analysis of Luncheon Discussions

UNIVERSITY OF MINNESOTA

Minnesota Student Association
Grainger Building (West Bank)

July 9, 1973

A freshman is planning to take a course from a teacher you know pretty well. You've only got a few minutes to chat before your next class, but you want to be as specific and helpful as possible.

1. You want to convey the impression that the teacher
   a. Puts across the material in an interesting way
   b. Stimulates the intellectual curiosity of the students
   c. Explains things clearly, and
   d. Skillfully observes student reactions

So you tell the freshman that this teacher _____.

2. You want to convey the impression that the teacher

   a. Assigns very difficult reading
   b. Asks for more than students could get done, and
   c. Assigns a great deal of reading

So you tell the freshman that this teacher _____.

3. You want to convey the impression that the teacher

   a. Decides in detail what should be done and how it should be done.
   b. Follows an outline closely
   c. Has everything going according to schedule, and
   d. Plans the activities of each class period in detail

So you tell the freshman that this teacher _____

4. You want to convey the impression that the teacher

   a. Tells students when they have done a particularly good job
   b. Compliments students in front of others, and
   c. Criticizes poor work

So you tell the freshman that this teacher _____.

5. You want to convey the impression

   a. That the students in the teacher's classes are freindly
   b. That you feel free to express your opinions in the teacher's classes
   c. That students in this teacher's classes argue with one another or with the instructor, not necessarily with hostility, and
   d. That this teacher's students frequently volunteer their own opinions.

So you tell the freshman that this teacher _____.

6. You want to convey the impression that this teacher

   a. Listens attentatively to what class members have to say
   b. Is friendly
   c. Is permissive and flexible, and
   d. Explains the reasons for criticisms

So you tell the freshman that this teacher _____.

UNIVERSITY OF MINNESOTA

Minnesota Student Association
Grainger Building (West Bank)

July 12, 1973

To: Jack Baker, Coordinator
of Special Projects
From: Gail Karwoski
Publications Coordinator
Re: Meetings with students regarding teaching behavior

I have reviewed my notes for the two luncheons. My analysis and conclusions are as follows.

I. The Wednesday group (WG) stressed the importance of factors a and c: "Puts across the material in an interesting way" and "Explains things clearly." they also thought this category dealth with a knowledge of teaching techniques.

The Thursday group (TG) stressed the "inspirational" quality embodied in factor b, indicating that to "Stimulate the intellectual curiosity of the students," the teacher would have to be doing all the things mentioned in a, c, and d. This group also thought that this item summarized the salient characteristics of the ideal teacher.

I would summarize these reactions in a sentence: "The teacher is clear and interesting; a skilled and inspiring teacher." I wonder, though, if all these adjectives might not confuse students.

II. This item is problematic. In Zinn's report, it is expressed as a negative quality. The teacher "overloads" the students with work. For the purposes of our mathematical model, the item should be phrased positively, as are the other items. But is the opposite of too much work the right amount of work or too little work?

WG considered this item a negative attribute, with the exception of one student who likes teachers who ask a lot of him. Generally, however, the group called this item "overly demanding," "impossible," and stressed the term desirability of a teacher being "realistic" in its discussion of this item. Every student has a different preference for the amount of work she/he likes, but all expect a "realistic" amount.

TG suggested terms like "overly demanding," "impossible," and "exhausting."

While TG's choices were rather more colorful descriptions of Zinn's overload item, I chose WG's "realistic" because it was clearly the student's opinion of the opposite of demanding too much. In evaluating a teacher on this item, a student may consider an unrealistic expectation to be asking too little work. However, students in the discussion groups didn't think that assigning too little was a serious fault, and said that they would willingly choose a course from a teacher with this fault. We will have to assume then, for the purposes of this evaluation, that the opposite of assigning a realistic amount of work is assigning too much.

"The teacher assigns a realistic amount of homework," is my summary.

III. Both groups were ambiguous about whether this item described a positive or negative trait. Both groups tended to think of this as more often positive than negative, and more desirable in math and science courses than in humanities courses. Apparently, structure or organization is thought of only in terms of the traditional lecture situation--discussion classes are not seen as particularly "organized."

Both groups agreed that the least bias-laden term for this item is "organized." I suggest, therefore: "The teacher is organized."

IV. Both WG and TG stressed the words "feedback" and "honest" to describe this item. TG also suggested "Constructive," while WG suggested "tactful."

I think that "the teacher gives tactful and honest feedback to students" summarizes the item and studentopinion accurately.

V. Words bandied about in description of item V included "relaxed atmosphere," "open," "congenial," "conducive to discussion," and "friendly."

I chose, "the teacher generates a relaxed class atmosphere encouraging discussion."

VI. Both groups agreed that this category, as well as item V, described "personality factors." Students suggested terms like "sensitive," "empathy," "responsive," "caring," "open," "honest," "identify," "concerned," etc. WG felt that a teacher would need to respect students as people to score well on this item.

I chose, "the teacher respects and empathizes with students as individuals."

APPENDIX C

Opinionaire, Results and Goodness-of-Fit

Opinionaire and Results

During Fall Quarter (1973), Student Life Studies requested from Admissions and Records (on MSA's behalf) a random sample of five percent of the enrolled Twin Cities students. Prior to mailing, each name was compared with the official records of those who had in fact paid tuition. This process, which Student Life Studies refers to as "cleaning the sample," resulted in the elimination of 170 names. The sample breakdown is as follows:

2,093	Names supplied by Admissions and Records
170	Names not registered as students Fall Quarter
1,923	Students to which opinionaires were mailed during Winter Quarter
952	Opinionaires returned during Winter Quarter and analyzed (49.5%)
15	Opinionaires returned after the date set for computer analysis and not included (0.7%)
967	Total opinionaires returned (50.2%)

The Teaching Evaluation project devoted considerable effort to encouraging the return of opinionaires. A total of five mailings were prepared, including: an introductory letter explaining the project and anticipating the opinionaire; the opinionaire with a cover letter and a sample evaluation form; a follow-up letter urging the return of the opinionaire (each follow-up mailing was sent only to non-responding students); the opinionaire and accompanying enclosures were mailed again; and a final follow-up letter.

In addition to these mailings, non-responding students were phoned. Reasons for refusal to respond included: Some students had moved out of their local residences, others indicated that they had not received the mailings. Some students actively chose not to respond, indicating that they disagreed with the concept of student evaluation or that they disliked the student government which was conducting the opinionaire. Callers were able to locate two students from the Law School, one of the colleges which caused analysis-problems, who indicated that the proposed evaluation was not relevant to their professional college.

It is possible that MSA's reputation among students interfered with the response rate. Also, the business-like format of most of our communications may not have appealed to students--in the final follow-up letter, we varied the format to include an illustration, but it is difficult to judge whether this enhanced the response. Response to written questionnaires are not, in general, particularly gratifying, and this factor alone might account for the disappointingly low percentage of returns.

The opinionaire is re-produced in the following pages. Where appropriate, the percentage results from all respondents are indicated in parentheses. Sections II and V have, in addition, the opinions of all undergraduate seniors. Since the study utilizes the average weights applied to the six teaching behaviors by the 3-plus year students, we felt it would be more meaningful to list those results in Section IV instead of the averages of all those who responded.

UNIVERSITY OF MINNESOTA

Minnesota Student Association
MSA Building (West Bank)
1818 So. 4th Street

Teaching Evaluation Survey

I. The following questions are not intended to turn you off. Although they may seem offensive or irrelevant, this information would be extremely helpful in analysing data (e.g.; there is no way to prove that sex or age plays no part in determining how people answer unless we know the sex and age of each respondant).

1. Age at last birthday: _____

2. Sex: Male (56.4) Female (43.6)

3. Class in college:

(12.9) a. Freshman

(17.5) b. Sophomore

(20.9) c. Junior

(24.0) d. Senior

(3.5) e. Adult Special

(21.3) f. Graduate

[The percentage of students registered in the Graduate school is lower than indicated here (Table C-5). Footnote #57 explains why some of those indicating "Graduate" should more accurately be classed as "Adult Special."]

4. College enrolled in (e.g. Ag, Graduate School, IT, etc.) _____

5. Major: _____

6. Number of classes you have taken in your major field: _____

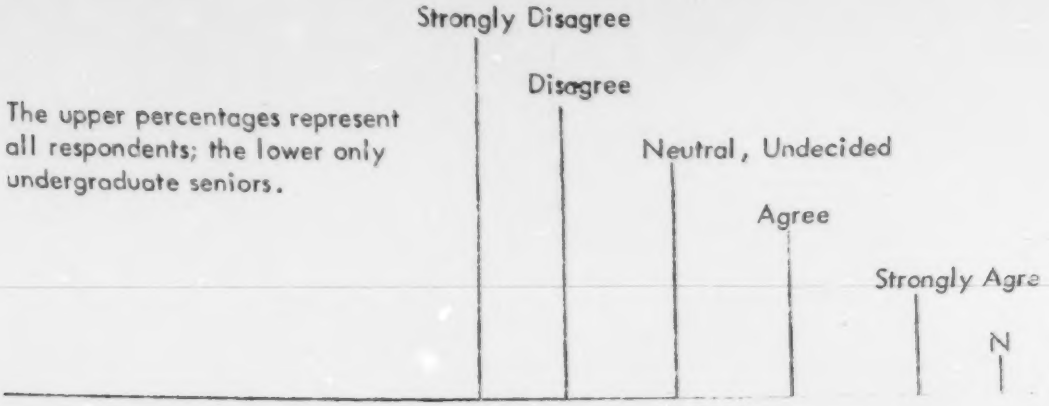
7. Approximate cumulative grade point-average at the University of Minnesota (check one):

(24.5) a. 4.00 to 3.51
(38.6) b. 3.50 to 3.00
(26.4) c. 2.99 to 2.51
(9.5) d. 2.50 to 2.00

8. Have you ever in the past, either at the University of Minnesota or elsewhere filled out a teaching or course evaluation form?

(68.4) a. Yes
(31.6) b. No

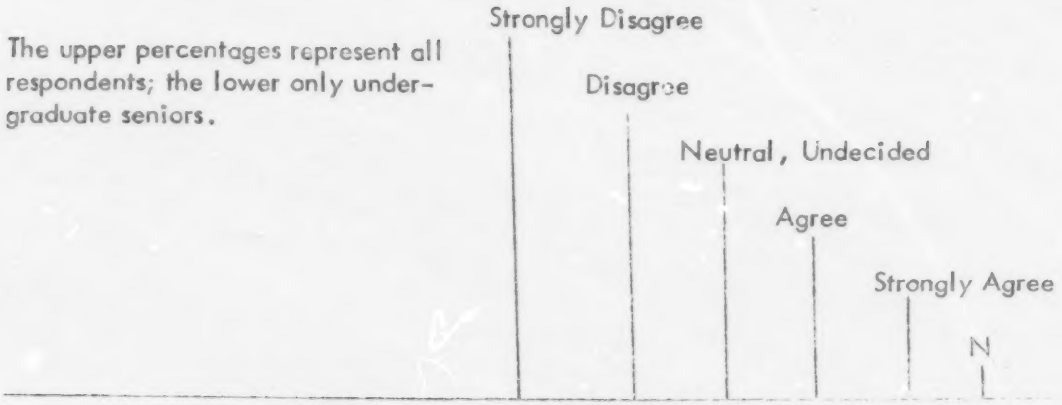
11. Do you agree with the following statements about teaching and the evaluation of teaching? Circle the response indicating how strongly you agree or disagree with each statement.



The upper percentages represent all respondents; the lower only undergraduate seniors.

1. I have had enough contact with some profs (by the term "prof," we mean any college teacher; including instructors, assistant professors, etc.) to be able to evaluate their teaching ability.	(1.2)	(6.6)	(8.0)	(61.0)	(23.3)	945
	(0.0)	(4.4)	(3.1)	(63.1)	(29.3)	225
2. In my experience, research activities improve a prof's teaching abilities.	(2.4)	(14.3)	(40.6)	(35.5)	(7.2)	939
	(5.4)	(12.5)	(36.6)	(40.2)	(5.4)	224
3. The published results of student evaluation of profs would be helpful to me when choosing courses.	(1.7)	(9.0)	(13.1)	(45.1)	(31.1)	942
	(1.3)	(11.2)	(12.9)	(44.6)	(29.9)	224
4. In retrospect, I would rate a number of profs differently now than at the time I took the course(s) from them.	(4.8)	(35.9)	(20.6)	(32.3)	(6.5)	942
	(6.3)	(39.5)	(17.5)	(30.5)	(6.3)	223
5. In my experience, community (public service) activities improve a prof's teaching ability.	(1.2)	(11.3)	(54.0)	(27.6)	(5.9)	943
	(1.3)	(9.8)	(55.6)	(27.6)	(5.8)	225
6. Teaching ability is a quality which can be judged by student evaluators.	(0.4)	(5.7)	(15.2)	(59.6)	(19.1)	942
	(0.0)	(7.1)	(16.5)	(51.8)	(24.6)	224

The upper percentages represent all respondents; the lower only undergraduate seniors.



7. The major reason I learn more from a prof is that the prof is witty and humorour.	(10.5)	(43.6)	(23.0)	(15.6)	(2.3)	943
	(12.4)	(43.4)	(20.4)	(16.0)	(2.7)	225
8. I feel that most profs try to improve their teaching based upon the results of student evaluations.	(2.7)	(19.3)	(36.6)	(38.2)	(2.3)	943
	(2.2)	(24.4)	(36.4)	(34.7)	(2.2)	225
9. I learn better from profs whose personalities I like.	(0.7)	(11.0)	(8.6)	(61.8)	(17.9)	946
	(0.4)	(12.9)	(11.1)	(61.8)	(13.8)	225
10. The grade I receive (or expect to receive) affects my evaluation of a prof.	(9.7)	(44.9)	(21.8)	(22.3)	(1.4)	947
	(9.3)	(46.2)	(16.0)	(26.2)	(2.2)	225
11. I feel qualified to evaluate the teaching ability of some profs.	(0.4)	(3.4)	(10.1)	(64.5)	(21.5)	947
	(0.0)	(0.4)	(5.3)	(66.2)	(28.0)	225

III. Who should make use of teaching evaluation by students? How should they be used? Who should administer an evaluation system? In this series of questions, please check all that apply.

1. Which of the following groups should have access to student evaluation of teaching proficiency? (Check all that apply)

(91.5) a. Students
(95.2) b. Individual profs
(83.5) c. Department chairperson N= 946
(59.9) d. Administration in general
(42.2) e. The Board of Regents
(22.4) f. The State Legislature
(7.6) g. Other. Specify _____

2. In which of the following ways should student evaluations of profs be utilized? (Check all that apply)

(86.7) a. By students, for choosing courses. N=944
(98.1) b. By the profs, to improve their teaching proficiency.
(63.9) c. By the administration, when decisions are made concerning a prof's departmental status and/or advancement.
(39.5) d. By the Board of Regents, for program evaluation.
(16.5) e. By the State Legislature, when evaluating University financial requests.
(2.9) f. Other. Specify _____

3. Which of the following groups would be appropriate to administer student evaluations? (Check all that apply)

(82.9) a. Student groups
(74.5) b. Faculty groups N=928
(48.4) c. The administration
(15.5) d. The Board of Regents
(7.2) e. The State Legislature
(5.5) f. Other. Specify _____

IV. We call the following six statements "teaching behaviors." How important is each behavior, in your opinion? Circle the number which most closely describes the value you attach to each behavior--five is of greatest importance; one is of least importance.

	least . . . . . .greatest				
1. The teacher is clear and interesting; a skilled and inspiring teacher.	1	2	3	4	5
2. The teacher assigns a realistic amount of homework.	1	2	3	4	5
3. The teacher is organized.	1	2	3	4	5
4. The teacher gives tactful and honest feedback.	1	2	3	4	5
5. The teacher generates a relaxed class atmosphere, encouraging discussion.	1	2	3	4	5
6. The teacher respects and empathizes with students as individuals.	1	2	3	4	5

Results of All 3-plus Year Students
N=461

Teaching Behavior	Grand Mean	Standard Deviation
1	4.703	.5283
2	3.295	1.0316
3	4.200	.7699
4	4.093	.8546
5	3.727	1.0248
6	3.993	.9989

V. Take a look at the Teaching Evaluation Form included with this questionnaire. This section concerns the effectiveness of that form. Circle the appropriate responses.

The upper percentages represent all respondents; the lower only undergraduate seniors.	Strongly Disagree	Disagree	Neutral, Undecided	Agree	Strongly Agree	N
1. The form is easy to understand.	(1.5) (0.9)	(9.6) (7.7)	(8.1) (10.0)	(64.1) (62.3)	(16.6) (19.1)	914 220
2. The design of the form is appealing.	(4.4) (5.0)	(18.8) (17.7)	(34.8) (30.9)	(37.3) (41.4)	(4.6) (5.0)	913 220
3. The questions provide meaningful information about a prof's teaching skills.	(3.0) (2.8)	(10.4) (9.2)	(19.9) (13.8)	(58.2) (62.8)	(8.6) (6.4)	911 218
4. The use of percentages is sufficiently clear to me.	(6.6) (7.8)	(16.9) (16.4)	(13.0) (14.2)	(54.4) (52.1)	(9.1) (9.6)	908 219
5. I would complete this form if it were sent to me at home.	(3.4) (3.2)	(8.0) (7.4)	(18.7) (16.6)	(59.0) (61.3)	(10.9) (11.5)	905 217
6. The questions are understandable.	(1.9) (1.4)	(3.8) (1.8)	(8.4) (5.0)	(75.3) (78.5)	(10.8) (13.2)	910 219
7. The results obtained from this form would be useful to me as an aid in choosing courses.	(5.0) (3.2)	(10.8) (9.1)	(22.3) (27.9)	(45.7) (46.1)	(16.2) (13.7)	906 219

VI. Finally, we'd like to know how this form, or a similar form, should be used at the University of Minnesota. Some of these questions have already been asked more generally. In this section, we're trying to find out how this specific system of teaching evaluation should be used at this University. In this series of questions, please check all that apply.

1. If such a form were in use at the University of Minnesota, which of the following groups should have access to the results obtained from it? (check all that apply)

(92.7) a. Students
(95.2) b. Faculty
(71.6) c. Administration N=922
(41.2) d. The Board of Regents
(22.0) e. The State Legislature
(7.6) f. Other. Specify _____

2. Should the Minnesota Student Association (MSA) develop a system (which would include the enclosed form, or a similar form) of evaluating profs?

(66.6) yes (11.8) no (19.5) undecided (no response: 2.1%)
N=952

3. If you answered "no" or "undecided" to question #2, what is the reason for your answer? (Check all that apply)
N=300

(28.0) a. Student evaluations of profs are inaccurate and unreliable.
(14.3) b. Profs generally will ignore student evaluations.
(12.7) c. The administration will ignore student evaluations.
(31.3) d. MSA is not an appropriate group to administer a teaching evaluation system.
(50.3) e. Although teaching evaluation is a good concept, the proposed form needs improvement.
(23.0) f. Other reasons. Specify _____

4. Indicate which student groups would be appropriate to administer a teaching evaluation system. (Check all that apply)
N=860

(74.7) a. MSA
(6.2) b. Interfraternity Council and/or Panhellenic Council (Greeks)
(59.1) c. Your own College Board
(37.3) d. Council of College Boards
(7.3) e. Others. Specify _____

5. If the results of this evaluation system were published annually in pamphlet form, would you buy the pamphlet. . .

(14.3) a. for $1?
(17.7) b. for 75¢?
(43.1) c. for 50¢? N=911
(62.7) d. for 25¢?
(27.7) e. I wouldn't buy it, but I'd try to borrow a copy.
(8.2) f. I wouldn't buy it or refer to it.

Goodness-of-Fit

As previously stated, a five percent sample of the Twin Cities student body was sent an opinionaire during Winter Quarter, 1974. The amount of opinionaires mailed, after removing names of students no longer enrolled, was 1,923. The total amount of responses received was 967, but fifteen of these were unusable because they were returned after the computer analysis was completed. Over forty-nine percent of the sample, then, returned useable opinionaires.

Chi-square goodness-of-fit tests were performed on the "cleaned" sample to determine if it was representative of the student body according to gender and college. For these tests, the student "population" was considered to be the enrollment distribution by college on October 5, 1973 (Table C-5). In addition, we set the decision point at 0.1 percent primarily because we felt chance alone could make it hard to obtain a good fit in such a large sample. We concluded that the variations between the sample and the population distributions could easily be attributed to chance. (See tables C-1 and C-4.)

Similar chi-square tests were performed on the 952 respondents. We found that the breakdown of respondents by college is not typical of the student body (Table C-3) and that the ratio of males to females is suspect (Table C-4). This bias, if any, would not pose a serious problem for those questions that are reported for information only. However, since the study

relies heavily on the grand means of the six teaching behaviors, we decided to re-perform the chi-square tests using only the 3-plus year students--those students whose responses were used to calculate the grand means. On the basis of these new tests, we concluded that the 3-plus year students in our sample were proportionately matched with the same students in the total population (Table C-6). And the individual two-tailed *t*-tests showed there was no difference in the weights applied to the six teaching behaviors by the male and female 3-plus year students.

Now, the question became whether the general opinions expressed by the respondent group are representative of the student body. We feel they are.

Even though the chi-square test is statistically significant, there is still a good fit between the respondents and the population. An observation of Table C-3 shows that the largest contributions to chi-square came from the General College (under represented), AFHE (over represented), Law School (under represented) and Biological Sciences (over represented). These variations may cause concern in the statistical sense but are not sufficient to create alarm in any real sense. This is because subtraction of only four responses from both the Biological Sciences and AFHE, along with the addition of another four responses to both the General College and Law School would reduce chi-square below the 0.1 percent decision point.

Remember that the amount of useable responses totals 947, a very hefty sample. It seem unlikely, therefore, that the composite opinions in a sample this size could be seriously altered by a handful of missing (or extra) responses. And despite the differences in response rates from these

four colleges, there is nothing to suggest that the opinions expressed by the respondents are anything but representative of the total population. We conclude, then, that the opinions reported here are sufficiently representative of the student body as a whole.

TABLE C-I

Chi-square Goodness-of-Fit Test:
"Cleaned" Sample to the Student Population

College	Registered Students[a]	Expected	Observed[b]	(O-E)	$\frac{(O-E)^2}{E}$
AFHE[c]	3085	144.68	142	2.68	.05
Agriculture					
Forestry					
Home Economics					
Biological Sciences	466	21.85	27	5.15	1.21
Business	1326	62.19	53	9.19	1.36
Education	2533	118.79	124	5.21	.23
General College	2505	117.48	116	1.48	.02
Graduate	6843	320.91	343	22.09	1.52
Health Sciences[d]	3141	147.30	131	16.30	1.80
Dentistry					
Dental Hygiene					
Medical					
Medical Tech.					
Mortuary Science					
Nursing					
Occupational Therapy					
Pharmacy					
Physical Therapy					
Public Health					
Institute of Technology	3622	171.74	186	14.26	1.18
Law	707	33.16	27	6.16	1.14
Liberal Arts	16,157	757.71	746	11.71	.18
University College	310	14.54	18	3.46	.32
Veterinary Medicine	270	12.66	10	2.66	.56
Total	41,005	1923.01	1923		10.07

Chi-square (11) (.30) = 12.90

a. Students officially registered on October 5, 1973. See Table C-5.
b. Students remaining in the sample supplied by Admissions and Records after the sample had been "cleaned."
c. The University's sample combined students in Agriculture, Forestry and Home Economics into one category called AFHE.
d. The enrollment data supplied to us did not include a breakdown of students in the Health Sciences according to the ten different professional schools.

TABLE C-2

Chi-square Goodness-of-Fit Test:
Respondents to the "Cleaned" Sample

College	University Sample[a]	Expected	Observed[b]	|O-E|	$\frac{(O-E)^2}{E}$
AFHE[c]	142	69.93	90	20.07	5.76
Agriculture					
Forestry					
Home Economics					
Biological Sciences	27	13.30	21	17.70	4.46
Business	53	26.10	33	6.90	1.82
Education	124	61.07	72	10.93	1.96
General College	116	57.13	38	19.13	6.41
Graduate	343	168.91	145	23.91	3.38
Health Sciences					
Dentistry	25	12.31	14	1.69	.23
Dental Hygiene	7	3.45	5	1.55	.70
Medical	34	16.74	15	1.74	.18
Medical Technology	7	3.45	3	.45	.06
Mortuary Science	2	.98	1	.02	.00
Nursing	24	11.82	13	1.18	.12
Occupational Therapy	4	1.97	2	.03	.00
Pharmacy	20	9.85	9	.85	.07
Physical Therapy	1	.49	1	.51	.53
Public Health	7	3.45	4	.55	.09
Institute of Technology	186	91.60	100	8.40	.77
Law	27	13.30	5	8.30	5.18
Liberal Arts	746	367.37	361	6.37	.11
University College	18	8.86	12	3.14	1.11
Veterinary Medicine	10	4.92	3	1.92	.75
Total	1923	947.00	947[d]		33.69

Chi-square (20)(.05) = 31.41
Chi-square (20)(.01) = 37.57

a. Students remaining in the sample supplied by Admissions and Records after the sample had been "cleaned."
b. Students who responded by returning the opinionaire.
c. The University's sample combined students in Agriculture, Forestry and Home Economics into one category called AFHE.
d. Five responses were omitted because the college was left blank.

TABLE C-3

Chi-square Goodness-of-Fit Test:
Respondents to the Student Population

College	Registered Students[a]	Expected	Observed[b]	|O-E|	$\frac{(O-E)^2}{E}$
AFHE[c]	3085	71.25	90	18.75	4.93
Agriculture					
Forestry					
Home Economics					
Biological Sciences	466	10.76	21	10.24	9.75
Business	1326	30.62	33	2.38	.18
Education	2533	58.50	72	13.50	3.12
General College	2505	57.85	38	19.85	6.81
Graduate	6643	158.04	145	13.04	1.08
Health Sciences[d]	3141	72.54	67	5.54	.42
Dentistry					
Dental Hygiene					
Medical					
Medical Technology					
Mortuary Science					
Nursing					
Occupational Therapy					
Pharmacy					
Physcial Therapy					
Public Health					
Institute of Technology	3662	84.57	100	15.43	2.82
Law	707	16.33	5	11.33	7.86
Liberal Arts	16,157	373.14	361	12.14	.39
University College	310	7.16	12	4.84	3.27
Veterinary Medicine	270	6.24	3	3.24	1.68
Total	41,005	947.00	947[e]		42.31

Chi-square (11)(.001) = 31.26

a. Students officially registered on October 5, 1973. See Table C-5.
b. Students who responded by returning the opinionaire.
c. The University's sample combined students in Agriculture, Forestry and Home Economics into one category called AFHE.
d. The enrollment data supplied to us did not include a breakdown of students in the Health Sciences according to the ten different professional schools.
e. Five responses were omitted because the college was left blank.

TABLE C-4

Chi-square Goodness-of-Fit Tests:
Ratios of Male-to-Female Students

"Cleaned" Sample to Student Population

Gender	Registered Students [a]	Expected	Observed [b]	|O-E|	$\frac{(O-E)^2}{E}$
Male	25,107	1177.44	1183	5.56	.03
Female	15,898	745.56	740	5.56	.04
Total	41,005	1923.00	1923		.07

Chi-square (1)(.70) = .15

Respondents to "Cleaned" Sample

Gender	University's Sample [b]	Expected	Observed [c]	|O-E|	$\frac{(O-E)^2}{E}$
Male	1183	585.04	536	49.04	4.11
Female	740	365.96	415	49.04	6.57
Total	1923	951.00	951 [d]		10.68

Chi-square (1)(.001) =10.83

Respondents to Student Population

Gender	Registered Students [a]	Expected	Observed [c]	|O-E|	$\frac{(O-E)^2}{E}$
Male	25,107	582.29	536	46.29	3.68
Female	15,898	368.71	~~514~~ 415	46.29	5.81
Total	41,005	951.00	951 [d]		9.49

Chi-square (1)(.001) = 10.83

a. Students officially registered on October 5, 1973. See Table C-5.
b. Students remaining in the sample supplied by Admissions and Records after the sample had been "cleaned."
c. Students who responded by returning the opinionaire.
d. One response was omitted because the gender was left blank.

TABLE C-5

Students Registered with the University of
Minnesota (Twin Cities Campus) on October 5, 1973

College	Male	Female	Total	Seniors
AFHE[a]				
Agriculture	1013	295	1303	368
Forestry	477	47	524	161
Home Economics	40	1213	1253	367
Biological Sciences	336	130	466	254
Business	1179	147	1326	671
Education	894	1639	2533	117
General College	1488	1017	2505	
Graduate	4688	2155	6843	
Health Sciences[b]	2025	1116	3141	(653)
Dentistry				108
Dental Hygiene				61
Medical				190
Medical Technology				56
Mortuary Science				42
Nursing				111
Occupational Therapy				31
Pharmacy				13
Physcial Therapy				31
Public Health				10
Institute of Technology	3423	239	3662	1168
Law	598	109	707	226
Liberal Arts	8569	7588	16,157	3226
University College	157	153	310	188
Veterinary Medicine	220	50	270	57
Total	25,107	15,898	41,005	7574

a. The University has divided the three schools of AFHE into distinct colleges.
b. The enrollment data supplied to us did not include a breakdown of students in the Health Sciences according to the ten different professional schools.

TABLE C-6

Chi-square Goodness-of-Fit Tests:
3-plus year Students

3-plus year Respondents to 3-plus year Population

College	Registered Seniors[a]	Expected	Observed[b]	|O-E|	$\frac{(O-E)^2}{E}$
AFHE[c]	896	29.40	30	.60	.01
Agriculture					
Forestry					
Home Economics					
Biological Sciences	254	8.34	12	3.66	1.61
Business	671	22.02	18	4.02	.73
Institute of Technology	1168	38.33	41	2.67	.19
Liberal Arts	3226	105.87	97	8.87	.74
University College	188	6.17	11	4.83	3.78
Veterinary Medicine	57	1.87	3	1.13	.68
Total	6460	212.00	212		7.74

Chi-square (6)(.20)=8.56

Ratios of Males to Females

Gender	Registered Students[d]	Expected	Observed	|O-E|	$\frac{(O-E)^2}{E}$
Male	25,107	232.27	237	4.73	.08
Female	15,898	178.73	174	4.73	.13
Total	41,005	461.00	461		.21

Chi-square (1)(.50)=.46

a. Because the sample was randomly selected from the total population, it was possible to utilize only those colleges in which seniors constituted a proportional sub-groups. Education, General College, Graduate, Health Sciences, and Law students were therefore eliminated. Figures were taken from Table C-5.
b. 3-plus year students who responded by returning the questionnaire.
c. The University's sample combined students in Agriculture, Forestry and Home Economics into one category called AFHE.
d. Students officially registered on October 5, 1973. See Table C-5. The breakdown of gender of all 3-plus year students in the total population was not available.
e. All 3-plus year students who responded by returning the opinionaire.

TABLE C-5

Students Registered with the University of Minnesota (Twin Cities Campus) on October 5, 1973

College	Male	Female	Total	Seniors
AFHE[a]				
Agriculture	1013	295	1303	368
Forestry	477	47	524	161
Home Economics	40	1213	1253	367
Biological Sciences	336	130	466	254
Business	1179	147	1326	671
Education	894	1639	2533	117
General College	1488	1017	2505	
Graduate	4688	2155	6843	
Health Sciences[b]	2025	1116	3141	(653)
Dentistry				108
Dental Hygiene				61
Medical				190
Medical Technology				56
Mortuary Science				42
Nursing				111
Occupational Therapy				31
Pharmacy				13
Physcial Therapy				31
Public Health				10
Institute of Technology	3423	239	3662	1168
Law	598	109	707	226
Liberal Arts	8569	7588	16,157	3226
University College	157	153	310	188
Veterinary Medicine	220	50	270	57
Total	25,107	15,898	41,005	7574

a. The University has divided the three schools of AFHE into distinct colleges.
b. The enrollment data supplied to us did not include a breakdown of students in the Health Sciences according to the ten different professional schools.

TABLE C-6

Chi-square Goodness-of-Fit Tests:
3-plus year Students

3-plus year Respondents to 3-plus year Population

College	Registered Seniors[a]	Expected	Observed[b]	|O-E|	$\frac{(O-E)^2}{E}$
AFHE[c]	896	29.40	30	.60	.01
Agriculture					
Forestry					
Home Economics					
Biological Sciences	254	8.34	12	3.66	1.61
Business	671	22.02	18	4.02	.73
Institute of Technology	1168	38.33	41	2.67	.19
Liberal Arts	3226	105.87	97	8.87	.74
University College	188	6.17	11	4.83	3.78
Veterinary Medicine	57	1.87	3	1.13	.68
Total	6460	212.00	212		7.74

Chi-square (6)(.20)=8.56

Ratios of Males to Females

Gender	Registered Students[d]	Expected	Observed	|O-E|	$\frac{(O-E)^2}{E}$
Male	25,107	232.27	287	4.73	.08
Female	15,898	178.73	174	4.73	.13
Total	41,005	461.00	461		.21

Chi-square (1)(.50)=.46

a. Because the sample was randomly selected from the total population, it was possible to utilize only those colleges in which seniors constituted a proportional sub-groups. Education, General College, Graduate, Health Sciences, and Law students were therefore eliminated. Figures were taken from Table C-5.
b. 3-plus year students who responded by returning the questionnaire.
c. The University's sample combined students in Agriculture, Forestry and Home Economics into one category called AFHE.
d. Students officially registered on October 5, 1973. See Table C-5. The breakdown of gender of all 3-plus year students in the total population was not available.
e. All 3-plus year students who responded by returning the opinionaire.

APPENDIX D

Two-way Univariate Analysis of Variance Matrix and Tables

for Two Classes and Six Colleges with Unequal Cells

MATRIX

	Agriculture	Liberal Arts	General College	Health Sciences	Home Economics	Institute of Technology
0-2 year students	12	176	29	7	13	37
2-plus year students	22	173	9	60	30	60

TABLES

Teaching Behavior #1: Skill

Source	d.f.	Mean Sq.	F	p less than
Class	1	.2585	.9205	.3378
College	5	.2192	.7806	.5639
Interaction	5	.3772	1.3434	.2442
Error	616	.2808		

Teaching Behavior #2: Realistic Homework

Source	d.f.	Mean Sq.	F	p less than
Class	1	4.0229	4.0905	.0436
College	5	3.6916	3.7536	.0024
Interaction	5	1.3132	1.3352	.2475
Error	616	.9835		

Teaching Behavior #3: Organization

Source	d.f.	Mean Sq.	F	p less than
Class	1	.0015	.0025	.9599
College	5	.6602	1.2040	.3482
Interaction	5	.6113	1.0375	.3946
Error	616	.5893		

Teaching Behavior #4: Feedback

Source	d.f.	Mean Sq.	F	p less than
Class	1	.4183	.5844	.4449
College	5	1.3854	1.9353	.0866
Interaction	5	.4148	.5795	.7158
Error	616	.7158		

Teaching Behavior #5: Class Atmosphere

Source	d.f.	Mean Sq.	F	p less than
Class	1	2.4668	2.5174	.1132
College	5	2.6581	2.7127	.0196
Interaction	5	1.5972	1.6300	.1500
Error	616	.9799		

Teaching Behavior #6: Empathy

Source	d.f.	Mean Sq.	F	p less than
Class	1	.3155	.3240	.5695
College	5	3.5859	3.6823	.0028
Interaction	5	1.4940	1.5341	.1772
Error	616	.9738		

APPENDIX E

One-way Univariate Analysis of Variance Matrix, Tables and Correlation for Fourteen Colleges with Unequal Cells

MATRIX

Agriculture	Biological Sciences	Business	Education	Forestry	General College	Graduate School
12	12	18	50	6	5	140

Health Sciences	Home Economics	Institute of Technology	Law School	Liberal Arts	University College	Vetinary Medicine
50	12	41	4	97	11	3

TABLES

Teaching Behavior # 1: Skill

Source	d.f.	Mean Sq.	F	p less than
College	13	.2804	.9689	.4813
Error	447	.2791		

Teaching Behavior #2: Realistic Homework

Source	d.f.	Mean Sq.	F	p less than
College	13	1.8626	1.7503	.0486
Error	447	1.0641		

Teaching Behavior #3: Organization

Source	d.f.	Mean Sq.	F	p less than
College	13	.2041	.3442	.9846
Error	447	.5928		

Teaching Behavior #4: Feedback

Source	d.f.	Mean Sq.	f	p less than
College	13	1.2693	1.7378	.0508
Error	447	.7304		

Teaching Behavior #5: Class Atmosphere

Source	d.f.	Mean Sq.	F	p less than
College	13	2.3179	2.2072	.0087
Error	447	1.0502		

Teaching Behavior #6: Empathy

Source	d.f.	Mean Sq.	F	p less than
College	13	2.0162	2.0207	.0179
Error	447	.9978		

CORRELATIONS

	Skill	Realistic Homework	Organization	Feedback	Class Atmosphere	Empathy
Skill	1.000					
Homework	.067	1.000				
Organization	.125	.285	1.000			
Feedback	.071	.229	.256	1.000		
Atmosphere	.143	.141	.131	.434	1.000	
Empathy	.147	.111	.083	.399	.492	1.000

APPENDIX F

Computer Program

The following FORTRAN computer program was written expecially to handle the data analysis of the MSA Method of Teaching Evaluation. It produces a "Departmental Teaching Summary" shown in appendix G and also an "Individualized Teaching Summary" for each prof.

```
      PROGRAM RATE(INPUT,OUTPUT,TAPE2)
      COMMON AVE(40,6),SDEV(40,6),IATT(200,6),ICT(40,6),MED(40,6)
      COMMON IALPHA(200,6)
      COMMON DATE
      DIMENSION NAME(40),WEIGHT(6),DEPT(2)
      READ 1, JMAX
    1 FORMAT(I2)
      DO 5 I=1,JMAX
      READ 2,NAME(I)
    2 FORMAT(A10)
    5 CONTINUE
      WEIGHT(1)=4.703
      WEIGHT(2)=3.295
      WEIGHT(3)=4.200
      WEIGHT(4)=4.093
      WEIGHT(5)=3.727
      WEIGHT(6)=3.898
      READ 4,DEPT(1),DEPT(2),QUART,YEAR
    4 FORMAT(2A10,A10,A10)
      READ 6,DATE
    6 FORMAT(A10)
      CALL DATAIN(JMAX,DEPT,QUART,YEAR,NAME)
      CALL SUMMARY(JMAX,DEPT,QUART,YEAR,NAME,WEIGHT)
      STOP
      END



      SUBROUTINE COMPUTE(IP,INUM)
      COMMON DATE
      COMMON AVE(40,6),SDEV(40,6),IATT(200,6),ICT(40,6),MED(40,6)
      COMMON IALPHA(200,6)
      DIMENSION SQDEV(200,6),ITOT(6)
      DO 27  J=1,INUM
      DO 27 I=1,6
   27 SQDEV(J,I)=0
      DO 21 I=1,6
      AVE(IP,I)=0
      SDEV(IP,I)=0
      ITOT(I)=0
   21 CONTINUE
      DO 22 I=1,6
      DO 23  J=1,INUM
      IF(IATT(J,I).EQ.-10) GO TO 23
      ITOT(I)=ITOT(I)+IATT(J,I)
   23 CONTINUE
      AVE(IP,I)=(ITOT(I)*1.)/ICT(IP,I)
      DO 24  J=1,INUM
      IF(IATT(J,I).EQ.-10) GO TO 24
      SQDEV(J,I)=ABS((IATT(J,I)*1.)-AVE(IP,I))
      SQDEV(J,I)=SQDEV(J,I)**2.
      SDEV(IP,I)=SDEV(IP,I)+SQDEV(J,I)
   24 CONTINUE
      SDEV(IP,I)=((SDEV(IP,I))*(1./ICT(IP,I)))**.5
   22 CONTINUE
      RETURN
      END
```

```
      SUBROUTINE MEDIAN(IP,INUM)
      COMMON DATE
      COMMON AVE(40,6),SDEV(40,6),IATT(200,6),ICT(40,6),MED(40,6)
      COMMON IALPHA(200,6)
      DIMENSION ATEMP(200)
      REAL MED
      DO 1 I=1,6
      DO 2 J=1,INUM
      ATEMP(J)=IATT(J,I)
2     CONTINUE
      CALL SORTI(ATEMP,INUM,999)
      DO 8 J=1,INUM
8     IATT(J,I)=ATEMP(J)
      IPOS=ICT(IP,I)
      IR=IPOS/2
      IRP=(IPOS+1)/2
      IF(IR.EQ.IRP)6,7
6     MED(IP,I)=(ATEMP(IR)+ATEMP(IR+1))/2.
      GO TO 1
7     MED(IP,I)=ATEMP(IRP)
1     CONTINUE
      RETURN
      END
```

```
      SUBROUTINE TITLE1(JMAX,DEPT,QUART,YEAR,NAME,IP)
      COMMON DATE
      DIMENSION DEPT(2),NAME(40)
      PRINT 9
9     FORMAT(1H1,/)
      PRINT 10,DATE
10    FORMAT(6 X,*INDIVIDUALIZED TEACHING SUMMARY*,24X,*DATE*,A10)
      PRINT 11
11    FORMAT(2X,130(*-*),/)
      PRINT 12,NAME(IP),DEPT(1),DEPT(2),QUART,YEAR
12    FORMAT(10H  PROF     ,A10,/,10H  DEPT     ,2A10,/,10H  QTR
     1A10,/,10H  YEAR     ,A10,/)
      PRINT 13
13    FORMAT(60X,*STUDENT RESPONSES*,/,2X,130(*-*))
      PRINT 14
14    FORMAT(23X,*SKILL*,11X,*ASSIGNMENTS*,9X,*ORGANIZATION*,10X,
     1*FEEDBACK*,10X,*ATMOSPHERE*,12X,*RESPECT*,/,
     112X,6(6X,*----------*))
      RETURN
      END
```

```
      SUBROUTINE SUMMARY(JMAX,DEPT,QUART,YEAR,NAME,WEIGHT)
      DIMENSION DEPT(2),NAME(40),WEIGHT(6),AINDEX(40),ADJR(40,6)
      COMMON DATE
      DIMENSION INDEX(40)
      COMMON AVE(40,6),SDEV(40,6),IATT(200,6),ICT(40,6),MED(40,6)
      COMMON IALPHA(200,6)
      CALL TITLE2(JMAX,DEPT,QUART,YEAR,NAME)
      DO 3 I=1,JMAX
    3 AINDEX(I)=0
      DO 1  IP=1,JMAX
      DO 1  I=1,6
      ADJR(IP,I)=WEIGHT(I)*AVE(IP,I)
      AINDEX(IP)=ADJR(IP,I)+AINDEX(IP)
    1 CONTINUE
      DO  4 IP=1,JMAX
          INDEX(IP)=AINDEX(IP)
      PRINT 2,NAME(IP), INDEX(IP),(AVE(IP,I),ICT(IP,I),I=1,6)
    2 FORMAT(2X,A10,6X,I6  ,3X,6(3X,F6.2,4X,I3,1X))
    4 CONTINUE
      PRINT 5
    5 FORMAT(2X,130(*-*),/,90X,
     1*NOTE--NO. = NUMBER OF STUDENTS RESPONDING*)
      RETURN
      END
```

```
      SUBROUTINE TITLE2(JMAX,DEPT,QUART,YEAR,NAME)
      COMMON DATE
      DIMENSION DEPT(2),NAME(40)
      PRINT 9,DATE
    9 FORMAT(1H1,/,115X,*DATE*,A10,/,2X,130(*-*))
      PRINT 10,DEPT(1),DEPT(2),QUART,YEAR
   10 FORMAT(10H  DEPT    ,2A10,/,10H  QTR     ,A10,/,10H  YEAR    ,
     1A10,//,52X,*DEPARTMENTAL TEACHING SUMMARY*,/,2X,130(*-*))
      PRINT 11
   11 FORMAT(17X,*TEACHING*,/,16X,*PROFICIENCY*,/,5X,*PROF*,10X,
     1*INDEX*,10X,*SKILL*,9X,*ASSIGNMENTS*,6X,*ORGANIZATION*,7X,
     1*FEEDBACK*,7X,*ATMOSPHERE*,10X,*RESPECT*,/,2X,10(*-*),4X,11(*-*),
     16(3X,*----------*),/,27X,6(3X,*AVERAGE    NO.*))
      RETURN
      END
```

```
      SUBROUTINE DATAIN(JMAX,DEPT,QUART,YEAR,NAME)
      COMMON DATE
      COMMON AVE(40,6),SDEV(40,6),IATT(200,6),ICT(40,6),MED(40,6)
      COMMON IALPHA(200,6)
      DIMENSION DEPT(2),NAME(40)
      IFL=0
      DO 5 K=1,JMAX
      DO 5 I=1,6
5     ICT(K,I)=0
      IEVAL=1   $ IP=0
3     READ(2,100)ITEACH,(IALPHA(IEVAL,I),I=1,6)
100   FORMAT(A2,6A3)
      IF(EOF,2) 15,28
28    DECODE(2,102,ITEACH)IPROF
102   FORMAT(I2)
      IF((IPROF.GE.1).OR.(IPROF.LE.40)) 8 ,21
21    PRINT 20,ITEACH,(IALPHA(IEVAL,I),I=1,6)
      GO TO 3
8     IF(IPROF.NE.IP) GO TO 12
13    DO 4 I=1,6
      DECODE(3,101,IALPHA(IEVAL,I))IATT(IEVAL,I)
101   FORMAT(I3)
      IF((IATT(IEVAL,I).LE.100).OR.(IATT(IEVAL,I).GE.0).OR.
     1(IATT(IEVAL,I).EQ.-10)) 18,19
19    PRINT 20,ITEACH,(IALPHA(IEVAL,IK),IK=1,6)
20    FORMAT(5X,*DATA CARD ERROR*,10X,A2,6A3)
      GO TO 3
18    IF(IATT(IEVAL,I).NE.-10) GO TO 4
      ICT(IP,I)=ICT(IP,I)+1
4     CONTINUE
      IEVAL=IEVAL+1
      GO TO 3
12    IF(IP.NE.0) GO TO 7
      IP=IPROF
      GO TO 13
15    IFL=1
7     INUM=IEVAL-1
      DO 6 I=1,6
      ICT(IP,I)=INUM-ICT(IP,I)
6     CONTINUE
      CALL COMPUTE(IP,INUM)
      CALL MEDIAN(IP,INUM)
      CALL DATAOUT(JMAX,DEPT,QUART,YEAR,NAME,IP,INUM)
      IP=IPROF
      DO 14 I=1,6
      IALPHA(1,I)=IALPHA(IEVAL,I)
      DECODE(3,101,IALPHA(1,I))IATT(1,I)
      IF(IATT(1,I).NE.-10) GO TO 14
      ICT(IP,I)=ICT(IP,I)+1
14    CONTINUE
      IEVAL=2
      IF(IFL.NE.1) GO TO 3
      RETURN
      END
```

```
      SUBROUTINE DATACUT(JMAX,DEPT,QUART,YEAR,NAME,IP,INUM)
      COMMON DATE
      COMMON AVE(40,6),SDEV(40,6),IATT(200,6),ICT(40,6),MED(40,6)
      COMMON IALPHA(200,6)
      DIMENSION IAA(200),IBB(200),ICC(200),IDD(200),IEE(200),IFF(200)
      DIMENSION DEPT(2),NAME(40)
      DO 999 I=1,INUM
      IAA(I)=IALPHA(I,1)
      IBB(I)=IALPHA(I,2)
      ICC(I)=IALPHA(I,3)
      IDD(I)=IALPHA(I,4)
      IEE(I)=IALPHA(I,5)
      IFF(I)=IALPHA(I,6)
999   CONTINUE
      CALL SORT1(IAA,INUM,1)
      CALL SORT1(IBB,INUM,1)
      CALL SORT1(ICC,INUM,1)
      CALL SORT1(IDD,INUM,1)
      CALL SORT1(IEE,INUM,1)
      CALL SORT1(IFF,INUM,1)
      DO 997 I=1,INUM
      IALPHA(I,1)=IAA(I)
      IALPHA(I,2)=IBB(I)
      IALPHA(I,3)=ICC(I)
      IALPHA(I,4)=IDD(I)
      IALPHA(I,5)=IEE(I)
      IALPHA(I,6)=IFF(I)
997   CONTINUE
      DO  13 J=1,INUM
      DO 13 I=1,6
      IF(IALPHA(J,I).EQ.3H-10)IALPHA(J,I)=10H
13    CONTINUE
      CALL TITLE1(JMAX,DEPT,QUART,YEAR,NAME,IP)
      IL=0
      IR=INUM
      DO 1 J=1,INUM,2
      L=J+1
      IF(IL.EQ.50)7,8
7     IL=0
      CALL TITLE1(JMAX,DEPT,QUART,YEAR,NAME,IP)
8     IF(IR.EQ.0) GO TO 5
      IF(IR.LT.2) GO TO 3
      PRINT 2,(IALPHA(J,I),IALPHA(L,I),I=1,6)
2     FORMAT(10A,6(10X,A3,4X,A3))
      IL=IL+1
      IR=IR-2
1     CONTINUE
3     PRINT 4,(IALPHA(J,I),I=1,6)
4     FORMAT(10A,6(10X,A3,7X))
5     PRINT 10
10    FORMAT(2X,130(*-*))
      PRINT 6,(AVE(IP,I),I=1,6),(MED(IP,I),I=1,6),(SDEV(IP,I),I=1,6)
6     FORMAT(2X,*AVERAGE *,6(12X,F6.2,2X),/,
     12X,*MEDIAN  *,6(12X,F6.2,2X),/,
     12X,*STANDARD DEVIATION*,2X,F6.2,2X,5(12X,F6.2,2X))
      PRINT 10
      RETURN
```

APPENDIX G

Computer Printout

An example of the computer generated "Department Teaching Summary' follows. It lists all profs in a department, the calculated Teaching Proficiency Indices, and the average ratings each prof received for six teaching behaviors. Also shown is the number of students responding to each behavior.

Though not shown in this report, an "individualized Teaching Summary" is also produced for each prof. It lists the actual ratings received from all students. This information will be useful to the individual prof and to the Department Chairperson.

Both summary reports reflect the changes suggested in footnote #69.

DATE

DEPT ACADEMICS
QTR SPRING
YEAR 1973-74

DEPARTMENTAL TEACHING SUMMARY

PROF	TEACHING PROFICIENCY INDEX	SKILL		ASSIGNMENTS		ORGANIZATION		FEEDBACK		ATMOSPHERE		RESPECT	
		AVERAGE	NO.	AVERAGE	NO.	AVERAGE	NO.	AVERAGE	NO.	AVERAGE	NO.	AVERAGE	NO.
JOHNSON	1334	61.12	17	51.46	13	49.57	14	54.13	15	58.57	7	58.90	10
HANSON	1430	46.88	17	54.81	16	69.14	14	69.25	8	69.14	14	54.45	11
SMITH	1308	56.13	15	58.50	14	59.82	11	55.92	12	57.14	14	61.21	14
JONES	1347	58.33	17	63.17	12	56.69	16	53.64	11	45.92	12	61.27	11
WILSON	1355	51.24	17	47.50	16	51.00	13	59.11	9	62.53	15	70.15	13

NOTE--NO. = NUMBER OF STUDENTS RESPONDING

APPENDIX H

Cost Breakdown

The following itemization is a realistic per-unit cost of the MSA method of Teaching Evaluation:

5.1¢	Postage (3 letters @ 1.7¢ non-profit rate)
.1	Computerized address labels ("cheshire" format from Admissions and Records)
3.0	Inserting, metering and mailing costs (mechanically done by Addressing and Mailing)
.7	3 letters on non-letterhead paper (50 reams @ $1.00)
1.7	1 postage-guaranteed and 3 non-letterhead envelopes
1.0	1 Teaching Evaluation form pre-printed with names of faculty in the senior's major deparment
12.0	Return postage (Post office charges 2¢ for permit privilege and costs of handling)
13.0	Keypunching and verification (2 min. @ 6.5¢)
1.0	Computer Analysis
1.4	Miscellaneous
39.0¢	

REFERENCES

Astin, W.W., & Lee, C.B.T. "Current Practices In The Evaluation And Training Of Teachers," Educational Record, 1966, 47:3, 361-375.

Bachman, J., & Turner, M. (Eds.). The Candle. Valparaiso, Indiana: Student Senate of Valparaiso University, 1967. 111 pp.

Barr, A., & Jones. R. "The Measurement And Prediction Of Teacher Efficiency," Review of Educational Research, 1958, 28, 256-264.

Bausell, R. B., & Magoon, J. "Instructional Methods And College Student Ratings Of Courses And Instructors," Journal of Experimental Education, 1972, 40: 4, 29-33.

Bendig, A. W. "Relation Of Level Of Course Achievement Of Students, Instructor And Course Ratings In Introductory Psychology," Educational and Psychological Measurement, 1953, 13, 437-488.

Brown, D. R. (Chair). "The University Of Michigan Report Of The Committee On Student Evaluation Of Courses," ERIC File #ED-050-685, 1968, 22 pp.

Brownlee, K. A. Statistical Theory And Methodology In Science And Engineering. New York: John Wiley & Sons, Inc., 1961 (2nd printing). 570 pp.

Canon, K. (Ed.). Salvage III: A Student Course Evaluation. Minneapolis: Communications Center for Academic Reform (University of Minnesota), 1971, 63 pp.

Centra, J. A. "Self-Ratings Of College Teachers: A Comparison With Student Ratings," ERIC File #ED-069-701, 1972. 22 pp.

Clark, K. E., & Keller, R. J. "Student Ratings Of College Teaching." In R. A. Eckert (Ed.), A University Looks At Its Program, pp. 197-212. Minneapolis: University of Minnesota Press, 1954. 223 pp.

Coffman, W. E. "Determining Students' Concepts Of Effective Teaching From Their Ratings of Instructors," Journal of Educational Psychology, 1954, 45, 277-286.

Cohen, J., & Humphreys, L. G. Memorandum To Faculty. Urbana: Department of Psychology, University of Illinois, 1960. (Mimeo)

Corcoran, M., & Gould, T. Student Reactions To Biology I and IA Taken Via Closed-circuit Television (CCTV), 1964. Minneapolis: Bureau of Institutional Research, University of Minnesota, 1964. 50 pp. (Mimeo)

Cosgrove, D. J. "Diagnostic Rating Of Teacher Performance," Journal of Educational Psychology, 1959, 50, 200-204.

Costin, F. Survey Of Opinions About Lecturers. Urbana: Department of Psychology, University of Illinois, 1968. (Mimeo)

Costin, F., Greenough, W. T., & Menges R. J. "Student Ratings Of College Teaching: Reliability, Validity, And Usefulness," Review of Educational Research, 1971, 41:5, 511-533.

Crannel, C.W. "A Preliminary Attempt To Identify The Factors In Student-Instructor Evaluation," Journal of Psychology, 1953, 36, 417-422.

Crawford, P. L., & Bradshaw, H. L. "Perception Of Characteristics Of Effective University Teachers: A Scaling Analysis," Educational and Psychological Measurement, 1968, 28, 1079-1085.

Domas, S. J., & Tiedeman, D. V. "Teacher Competence: An Annotated Bibliography," Journal of Experimental Education, 1950, 19, 101-218.

Downie, N. W. "Student Evaluation Of Faculty," Journal of Higher Education, 1952, 23, 495-496, 503.

Doyle, K. O. "Construction And Evaluation Of Scales For Rating College Instructors," Doctoral Dissertation, University of Minnesota, 1972. 224 pp.

Doyle, K. O. Toward A Conceptual Model Of Faculty Evaluation. Minneapolis: Measurement Services Center, University of Minnesota, 1972. 10 pp. (Mimeo)

Doyle, K.O. Faculty Evaluation: Some Considerations And A Model. Minneapolis: Measuremnt Services Center, University of Minnesota, 1973. 35 pp. (Mimeo)

Doyle, K. O., & Whitely, S. E. Reply To Rodin & Rodin. Minneapolis: Measurement Services Center, University of Minnesota, 1972. 11 pp.

English, M. "Jettisoning MSA," Minnesota Daily, April 8, 1974, pp. 7+.

Estrin, H. A. "Effective And Ineffective Engineering Instructors," Improving College and University Teaching, 1965, 13, 137-39

Evans, E. D. "Student Activism And Teaching Effectiveness: Survival Of The Fittest?," Journal of College Student Personnel, 1969, 10:2, 102-108.

Fahey, G. L. "A Measurement Of College Instructor Behavior," ERIC File #ED-016-294, 1967. 7 pp.

Fahey, G. L. "Student Rating Of Teaching: Some Questionable Assumptions." In Ducanis, A. J. (Dir.), "Student Evaluation of Teaching: Presentations at a Conference," ERIC File #ED-054-724, 1970, 23 pp.

Finn, J. D. Multivariance: Univariate And Multivariate Analysis of Variance, Covariance And Regression. Ann Arbor, Mich.: National Educational Resources, Inc., 1972 (Version V). 135 pp.

French, G. J. College Students' Concept Of Effective Teaching Determined By An Analysis Of Teacher Ratings. Seattle: University of Washington, 1957. (Mimeo)

Friedman, F., & Dack, C. (Pres. & Vice Pres.). Teacher Evaluation. Duluth: Student Association, University of Minnesota, Duluth, 1969. 165 pp.

Gadzella, B.M. "College Students: Views And Ratings Of An Ideal Professor," College and University, 1968, 44, 89-96.

Gallob, H. F. "Confounding Of Sources Of Variation In Factor-Analytic Techniques," Psychological Bulletin, 1968, 70, 330-344.

Garverick, C. S., & Carter, H. D. "Instructor Ratings And Expected Grades," California Journal of Educational Research, 1962, 13, 218-221.

Gibb, C. A. "Classroom Behavior Of The College Teacher," Educational and Psychological Measurement, 1955, 15, 254-263.

Guthrie, D., Shepard, L. B., & Stone, S. A. "Student Nominations For Teaching Awards," Improving College and University Teaching, 1969, 17:4, 249-253.

Guthrie, E. R. The Evaluation Of Teaching: A Progress Report. Seattle: University of Washington, 1954.

Harvey, J. N., & Barker, D. G. "Student Evaluation Of Teaching Effectiveness," Improving College and University Teaching, 1970, 18, 275-278.

Hayes, R. B. "A Way To Measure Classroom Teaching Effectiveness," Journal of Teacher Education, 1963, 14, 168-176. (a)

Hayes, R. B. "A Way To Measure Teaching," Journal of Educational Research, 1963, 57, 47-50. (b)

Hildebrand, M., & Wilson, R. C. "Effective University Teaching And Its Evaluation," ERIC File #ED-039-860, 1970, 41 pp.

Hildebrand, M., Wilson, R. C., & Dienst, E. R. "Evaluating University Teaching," ERIC File #ED-057-748, 1971. 57 pp.

Hillery, J. M., & Yukl, G. A. "Convergent And Discriminant Validation Of Student Ratings Of College Instructors," ERIC File #ED-052-737, 1971. 13 pp.

Hoyt, D. P. "Identifying Effective Teaching Behaviors," ERIC File #ED-039-197, 1969. 136 pp.

Issacson, R. L., McKeachie, W. J., Milholland, J. E., Lin, Y. G., Hofeller, M., Baerwaldt, J. W., & Zinn, K. L. "Dimensions Of Student Evaluations Of Teaching," Journal of Educational Psychology, 1964, 55, 344-351.

Karwoski, G. L. (Ed.). MSA Communicator: MSA Corps Created. Minneapolis: Minnesota Student Association, no date (circa March, 1973). 240 pp. (no pagination)

Kelly, K. "A Plea For Redemption," Minnesota Daily, April 5, 1974, pp.7+.

Kroll, B., DeGross, J., & Rudolph B. The Salvage II: A Student Course Evaluation. Minneapolis: Communications Center for Academic Reform (University of Minnesota). Published as an insert, Minnesota Daily (Student Newspaper), June 2,1970. 12 pp.

Letchworth, G., & Hayes, L. K. "Effect Of Faculty Research Activity On Instruction and Research Activity Of Institutions: What Is--What Should Be," ERIC File #ED-043-298, 1970. 46 pp.

Lewis, E. C. "Student-Teacher Interaction As A Determiner Of Effective Teaching," ERIC File #ED-002-933, 1960. 56 pp.

Lovell, G. D., & Haner C. F. "Forced-Choice Applied To College Faculty Rating," Educational and Psychological Measurement, 1955, 15, 291-304.

Martin, J. R., Adams, R. B., & Baron, M. C. "Studies In Educational Closed-Circuit Television," ERIC File #ED-014-213, 1958. 82 pp.

Maslow, A. H., & Zimmerman, W. "College Teaching Ability, Scholarly Activity And Personality," Journal of Educational Psychology, 1956, 47, 185-189.

McDaniel, E., & Ravitz, L. "Students' Perceptions Of College Instruction," Improving College and University Teaching, 1971, 19:3, 217-18.

McKeachie, W. J. "Student Ratings Of Faculty," AAUP Bulletin, 1969, 55, 439-444. (a)

McKeachie, W. J. Teaching Tips: A Guidebook For The Beginning College Teacher. (6th ed.) Lexington, Mass.: D.C. Heath, 1969. (b)

McKeachie, W. J. "Studies Of Student Ratings Of Faculty," ERIC File #ED-057-745, 1971. 41 pp.

McKeachie, W. H., Lin, Y., & Mann, W. "Student Ratings Of Teacher Effectiveness: Validity Studies," American Educational Research Journal, 1971, 8, 435-445.

McNeil, J. D. "Concomitants Of Using Behavioral Objectives In The Assessment Of Teacher Effectiveness," Journal of Experimental Education, 1967, 36, 69-74.

Measurement Services Center. A Guide To The Student Opinion Survey. Minneapolis: University of Minnesota, 1973. 12 pp.

Measurement Services Center. Measurement Services Center. Minneapolis: University of Minnesota, no date (a). Promotional brochure.

Measurement Services Center. Student Ratings Of Instruction. Minneapolis: University of Minnesota, no date (b). 3 pp. (Mimeo)

Meehl, P. Student Rating Of College Teachers. Unpublished Summa Thesis, University of Minnesota, 1941. 105 pp.

Milton, O. "Survey Of Faculty Views On Student Participation In Decision Making," ERIC File #ED-024-332, 1968. 35 pp.

Mueller, D. G. "How To Evaluate Teaching," Journal of Teacher Education, 1971, XXII:2, 229-244.

Mueller, R. H., Roach, P. J., & Malone , J. A. "College Students' Views Of The Characteristics Of An 'Ideal' Professor," Psychology in the Schools, 1971, 8:2, 161-167.

Musella, D., & Rusch, R. "Student Opinion On College Teaching," Improving College and University Teaching, 1968, 16, 137-140.

Naylor, B. J. "Attitude Change Of Freshman College Students Toward Their Role As Raters Of Teacher Behavior," ERIC File #ED-043-313, 1970. 29 pp.

Norman, N., Bent, D. H. & Hull, C. H. Statistical Package For Social Sciences. New York: McGraw-Hill Book Co., 1970. 343 pp.

Norman, W. T. "On Estimating Psychological Relationships: Social Desirability And Self-Report," Psychological Bulletin, 1967, 67, 273-293.

Parliament, S. The Curriculum: A Student Perspective. Minneapolis: Minnesota Student Association, 1967. 38 pp.

Peretz, M., Lee, R., Movseysion, G., Terishivshi, A., & Frampton, M. L. "Project SCATE: An Exploratory Program For The Improvement Of Undergraduate Curriculum And Instruction," ERIC File #ED-043-273, 1969. 142 pp.

Rickgarn, R. "SCSA Explains Student Assn. Plan," Minnesota Daily (University of Minnesota Student Newspaper), April 10, 1959.

Ringham E. "MSA Abolished As Voters Adopt New Constitution," Minnesota Daily, April 15, 1974, p. 1.

Ronan, W. W. "Evaluating College Classroom Teaching Effectiveness," ERIC File #ED-063-518, 1972. 36 pp.

Rudolph, B. (Vice Pres.). The Salvage: A Student Course Evaluation. Minneapolis: Minnesota Student Association, 1969. 127 pp.

Smithers, A. "Some Factors In Lecturing," Education Review, 1970, 22:2, 141-150.

Solomon, D. "Teacher Behavior Dimensions, Course Characteristics, And Student Evaluations Of Teachers," American Educational Research Journal, 1966, 3, 35-47.

Solomon, D., Rosenberg, L., & Bezdek, W. E. "Teacher Behavior And Student Learning," Journal of Educational Psychology, 1964, 55, 23-30

Sommer, S. (ED.). Department Evaluation. Duluth: Student Association, University of Minnesota, Duluth, 1969. 91 pp.

Spencer, R. E. Judge Consistency Of Course Evaluation Questionaire Ratings (Report #211). Urbana: Office of Instructional Resources, University of Illinois, no date. (Mimeo)

Spencer, R. E. The Illinois Course Evaluation Questionaire: Manual Of Interpretation (Report # 270). Urbana: Office of Instructional Resources, Measurement and Research Division, University of Illinois, 1968. (Mimeo)

Spencer, R. E., & Aleamoni, L. M. "A Student Course Evaluation Questionnaire," Journal of Educational Measurement, 1970, 7, 209-210.

Stecklein, J. E. "Colleges And Universities- -Programs: Evaluation." In C. W. Harris (Ed.), Encyclopedia of Educational Research (3rd ed.), pp. 285-289. New York: McMillan Co., 1960

Stoner, V. "Baker, Schwartz Win MSA Election," Minnesota Daily (University of Minnesota Student Newspaper), April 7, 1972, p. 1.

Teske, R. P., & Kruse, G. Teacher Evaluation And Department Evaluation. Duluth: Student Association, University of Minnesota, Duluth, 1971. 174 pp.

Wegerson, E. Letter From The Academic Affairs Vice President, Student Association, University of Minnesota, Duluth, to Jack Baker, April 1, 1974. 2 pp.

Werdell, P. R. Course And Teacher Evaluation. (2nd ed.) Washington, D.C.: United States National Student Association, 1967. 104 pp.

Wherry, R. J. Control Of Bias In Rating: Instructor Rating Scales. Washington, D.C.: Personnel Research Section, AGO, U.S. Dept. of Army, 1950.

Whitely, S. E., Doyle, K. O. , & Hopkinson, K. Student Ratings And Criteria For Effective Teaching. Minneapolis: Measurement Services Center, University of Minnesota, 1973. 41 pp.

Witheiler, P., & Yuker, H. E. "Course Evaluations At Hofstra University, 1969," ERIC File #ED-040-661, 1970. 24 pp.

Tyler, R. W. Constructing Achievement Tests. Columbus: Ohio State University, 1934.

Wittrock, M. C. "Set Applied To Student Learning," Journal of Educational Psychology, 1962, 53, 175-180.

Zelby, L. W. "Student-Faculty Evaluation," Science, 1974, 183:4131, 1267-1270.

Zirinsky, J. (Ed.). 1971 Course Evaluation Book. Boston: Boston University Student Union, 1971. 192 pp.